

Understanding Consumption and Environmental Change in China: A Cross-national Comparison of Consumer Patterns

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Abstract

China's rapidly expanding economic prosperity has created a scale mismatch between increased standards of living for a large population and environmental distress at the global level. The potential size of an affluent Chinese consumer class magnifies the ecological impact of Chinese consumption. In this study, the emerging Chinese consumer market is compared with two other high-consuming lifestyles fashioned in the wake of economic scarcity; that of the United States after the Depression, and post-war Europe. The Chinese consumption pattern is found to currently follow a lower-consumption style, similar to that of Europe, but one that is based in an ideology of development through mass consumption, comparable to the United States. I further argue that this consumer style will change as the incomes and the buying-potential of the Chinese continue to expand creating a unique consumer pattern moderated by high population density.

Keywords: *consumption, China, development, technology, comparative studies*

Introduction

Analyses of environmental change in China should begin with an understanding of official Chinese economic policy. In a 2006 speech delivered to the National People's Congress, Chinese Premier Wen Jiabao advanced a state policy of "deepening economic restructuring and opening China to the outside world" (Wen 2006). Wen emphasized that a key part of this economic restructuring has been accomplished by encouraging consumer spending as a source of economic growth. Over the last three decades, China has had the fastest growing economy in the world, increasing by approximately 10% per year (Lardy 2006). Income levels have concomitantly increased rapidly, creating a young, urban population that is eager to consume (Li 2005). Encouraged by a government keen on promoting economic development through consumer spending, private consumption

levels among the urban elite have skyrocketed.

The Chinese government's policy of economic development through consumer spending mirrors a global trend in which the creation of consumption-driven modes of capital accumulation has become a favored complement to the traditional production-based approach. As part of this process, the state has turned to consumption as a central component in legitimizing capitalist development and neo-liberal globalization (Sklair 2002) that is framed in a culture-ideology of consumerism, encouraging the constant escalation of consumer spending (Sklair 1994).

As such, styles of consumption need to be understood beyond just individual choice, but as a sequence of socially embedded decisions mediated by relations of power and authority (Princen et al. 2002). Different consumption regimes have emerged in the United States, Europe and China that are necessarily socially and historically contingent. In each region, within the last century, periods of material expansion have followed stages of economic deprivation creating three different models of consumption regimes shaped in the wake of scarcity. The strength and size of the emerging consumer class in China makes the country a site comparable with the established pattern of high rates of consumption in the U.S., and moderated but high consumerism in Europe. Comparison of ideologies shaping consumption and an ideal typical profile of current consumer patterns provide a basis for understanding emerging consumer norms in China.

China provides a crucial case (Gerring 2007) for such study because of the magnitude of potential environmental impacts of such large-scale acquisition and disposal. Consumption levels grow with prosperity, a pattern that can be seen from the core countries to the periphery as globalization and free trade selectively enrich certain segments of the world's population. High incomes are associated with both a better standard of living and higher rates of consumption, which affects energy and resource use, as higher-consumption lifestyles are associated with both greater use of natural resources and greater use of energy to produce materials (Dhakal 2004). Economic expansion in China means not just a higher standard of living for the country's population, but

the introduction of millions of new, high-volume consumers contributing to resource depletion and greenhouse gas emissions. Problematizing consumption as such, rather than just production, shifts away from a traditional focus on the producer (Princen 2002) and highlights the role of acquisition in resource use (Carolan 2004). In this sense, while production, regulation and use are of importance, the impact of getting and discarding must be considered a crucial site of inquiry in itself.

In this paper, I forward a heuristic approach to better understand the ecological impacts of emerging high-volume consumerism in China. First, I compare consumer ideologies in the United States, Europe and China and create a basic consumer profile. I then explore some of the ecological implications of emerging Chinese consumer patterns.

Comparing Consumption

Nicosia and Mayer (1976) first argued for the importance of society-level studies of consumption patterns. Individual buying habits are shaped by interdependent social, cultural, and political forces that are reflected in national and regional patterns of consumption (Mortensen 2005). Consumer norms should be understood as emerging from specific historical and economic contexts and resulting ideologies can be understood to shape consumer behaviors. To help clarify the trajectory of change in Chinese consumption patterns, I begin with a discussion of different consumption regimes that have emerged at different historical moments in the United States, Europe and China. While the circumstances differ, they are comparable in that they each represent a situation of burgeoning consumerism after an extended period of economic deprivation, with the Depression in the U.S., depression, war and then rationing in Europe, and the Cultural Revolution in China.

In order to create a picture of these consumer cultures in practice I then construct ideal-typical “consumer profiles” for each of the three regions. These profiles are based on consumption data in four primary spending categories that have substantial environmental impact: housing, cars, consumer durables and meat. In addition I have included an overall gauge of consumption based on the region’s per capita ecological footprint (World Wildlife Fund 2006).

Type and location of housing varies from region to region and can have important ecological implications. More dense urban housing patterns tend to use fewer resources as less land is developed, fewer resources are used in heating and maintenance, and transportation without the use of an automobile is more convenient (Mortensen 2005). Automobiles are also a key indicator of consumption patterns. Large amounts of natural resources required to operate the vehicle

and the detrimental effects of emissions make cars a key element for consideration. Consumer durables include household appliances such as refrigerators and air conditioners, as well as high-tech products like computers and cell phones. The high rate of obsolescence and frequent changes in popularity of these products leads to rapid disposal of environmentally-sensitive materials. Energy use in operating technological products is also a concern (Mortensen 2005). Global meat consumption has risen dramatically over the last 30 years in both developing and developed countries (Delgado et al. 1999). Meat production has considerable consequences for environmental degradation including deforestation and desertification from the conversion of land, increased water and grain use to feed livestock, and greater energy consumption through the use of diesel engines, fertilizers and biocides (Goodland 1997; York and Gossard 2004).

The ecological footprint can be used as a measure at a national scale to compare the gross environmental impact across regions, as it tracks use of the biosphere by assessing the amount of productive land and sea required to provide resources and absorb waste (WWF 2006). The number represents the area of land that is required to support current levels of consumption and waste by the population in a particular region (Wackernagel and Rees 1996). As such, it can provide a rough quantitative measure of how much a country is consuming in comparison with how much can be sustained. The global average footprint is 2.23 global hectares per person. Table 1 compares basic consumption and energy use in the three regions.

Table 1. Overall Consumption and Energy Use Levels in 2005

Item	Region		
	U.S.	EU 15	China
Per Capita Annual Consumption (in U.S. Dollars)	26,599	15,266	1,028*
Energy Consumption per capita (in million Btu)	342.7	213.3	45.9
Global Footprint, per capita	9.6 gha	4.8 gha	1.6 gha

*Urban households only

Sources: Euromonitor 2006; World Wildlife Fund 2006

Ideologies and Consumption Patterns

A number of similarities can be seen when comparing the ideological development of the U.S. and China. Although emerging from different historical circumstances of deprivation and scarcity, construction of consumer norms and buying habits can be seen to be taking shape along similar ideological lines promoting high rates of spending and acquisition.

Europeans, while still high consumers on the global level, developed a more restrained consumption style rooted in an ideology of moderation.

In the post-Depression era in the U.S. consumption became linked with patriotism and socially-minded behavior (Garon and Maclachlan 2006). In order to spur the economy consumption was strongly encouraged and buying more was equated with helping the nation. Continuing a tradition that had already begun with the New Deal, consumption in the post-war years was claimed to promote the economy, democracy and citizenship. It was accepted that a society built around mass consumption would create prosperity as well as equality (Cohen 2006). Progressive reformers during the 1930s put forward consumer choice and demand for consumer rights as a means toward achieving citizen's rights, framing consumerism in such a way that was quickly embraced by policy-makers and citizens. This early method of equating consumer protection and the public good shaped American approaches to ensuring economic health during World War II and the post-War years. A promise was thus put forth that if all citizens could participate in consumption they could share in the "American way of life," and thus mass consumption would offer the "citizen's passport to democracy" (Maclachlan and Trentmann 2004, 186). Political democracy was constructed as rooted within a consumer democracy in which, in theory, all citizens had access to and the ability to buy goods.

It was also during the Depression that the idea of the consumer as a protector and savior of the then fragile capitalist economy was put forth (Cohen 2003). Within this framing, mass consumption was not seen as an indulgence, but as a responsibility that would improve the living standards of all Americans. Private consumption became linked with public benefit and empowerment of consumers was claimed to be a critical part of democratization as individuals could express themselves materially and demand higher standards and quality (Garon and Maclachlan 2006). The literature on positional spending (Hirsch 1976; Frank 1999; Schor 1998) demonstrates the extent to which this ideology of inclusion through spending was embraced by Americans at all socioeconomic levels and guided academic and popular discourses on consumer motivations. Consumption in the U.S. thus became framed in terms of "keeping up with the Jones" in such a way that mediated not just individual approaches to spending but also analysis of American spending patterns.

In Europe, by contrast, a different model of consumption emerged during the post-war years, where a shared history of war and deprivation created continuities across countries. The continent as a whole experienced slower economic growth during this time period, compared with the rapid expansion of material abundance in the U.S. The American system, char-

acterized by individual choice as a means toward democratic expression contrasted with a European regime in which consumer citizenship was established through social participation and state-led economic distribution (De Grazia 1998).

Enduring rationing and scarcity after the two world wars helped structure a consumer economy around saving and moderation. Many Europeans were encouraged to save their money and over-consumption was seen as wasteful rather than beneficial to the economy (Garon and Maclachlan 2006). Consumption thus gained a connotation of economizing for the average European consumer, not spending. Personal consumption was instead constructed as being in opposition to the national priorities of reducing inflation and fighting wars. Contrary to the U.S., in Europe the adverse effects of consumer culture were stressed and buying came to be seen as a self-indulgent activity. Attempts by the Marshall Plan, for example, to spread American-style consumerism were met with resistance by the Labour Party's austerity plan in Britain, and encountered much suspicion and hostility in France (Kroen 2006). Studies of consumer behaviors in Britain and West Germany suggest that these reactions to scarcity and rationing during and after the war years continued to influence families' conceptions of affluence and spending through the 1950s and '60s (Trentmann 2004). Thus, while consumption was framed as a consensus maker in the U.S., European consumerism was constructed along a fracture between the majority who felt the effects of rationing and austerity plans, and the well-off minority who could rely on personal resources (DeGrazia 1998).

In this climate, drawing from a history of consumer consciousness, academic and public debate around consumption in Europe frequently was situated around an ideology of the consumer as activist and consumer movements were used as political actions (Daunton and Hilton 2001). As early as the mid-1800s in Britain, France and Belgium "consumer consciousness" was being used as a form of resistance. Present-day French consumer politics in particular grew out of a radical history of grassroots consumer activism, while in Germany consumer rights remain central to political debate (Trumbull 2000).

In contrast with Europe's experience of deprivation during and after World War II, analysis of present-day spending in China must be considered within the relatively recent historical context of scarcity and strictly controlled production and consumption. Buying habits are emerging from a standard of "massified" consumption of the 1960s and '70s created under the socialist distribution system (Lu 2000, 129). Under these conditions, all consumer goods were allocated directly by employers or municipal governments to meet basic needs. As such there was a great deal of scarcity, but egalitarianism in commodity ownership (Davis 2000). Now,

although the average income has quadrupled between 1978 and 2000, China has also changed from one of the most economically egalitarian countries in Asia to one of the least (Hanser 2004).

In China's recent and dramatic economic expansion, a promise similar to that of the U.S. to create "consumer citizens" is being made. In the 1980s and '90s the idea of strengthening the economy through consumption was embraced and expanded by the government as a strategy for development. Today the Chinese government actively promotes spending and frequently defines success in terms of consumer gains. Consumers are frequently presented as important economic actors who improve the functioning of the overall economy (Davis 2000). The political elite have embraced a neoliberal model in which personal consumption is emphasized as a driver of economic growth and consumer choice is a spur to innovation (Davis 2005).

Combined with this is the promise of a consumer democracy in the lack of a political democracy, in which citizens can express themselves through the purchase of goods. Citizenship and inclusion in the Chinese state are thus becoming tied with the ability to consume (Wang 2001), a pattern similar to that which appeared in the post-war U.S., but to an extreme. Consumer democracy is rather being constructed as an alternative to political democracy and a space for individual expression (Davis 2000).

Spending in China is fundamentally divided between those who have the material resources to pay and those who do not, to an extent not seen in the economies of the U.S. and Europe. The Chinese consumer economy has intentionally been organized around the cosmopolitan, urban lifestyle, leaving a chasm, more so than a fracture, in patterns of consumer spending and accumulation between the urban and the rural. Urban Chinese own almost three times as much as rural residents and much of that wealth is concentrated in the three major cities of Beijing, Shanghai and Guangzhou (McEwan et al. 2006). While inequality is growing and has always been present in the U.S., consumerism remains an avenue through which Americans at all socio-economic levels *attempt* to achieve a measure of social inclusion through positional acquisition. The deliberate inequality spurred by Chinese government policies of enriching urban areas effectively limits and bifurcates such inclusion along urban and rural lines.

Consumer Ideologies in Practice

The result of these ideologies can be seen in the patterns by which households in each of the three areas consume. Ownership patterns of housing, cars, consumer durables and meat consumption and a national ecological footprint can be

combined to create a basic consumer profile for each area. These numbers reflect a pattern of high consumption in the U.S., comparatively moderate consumption in Europe, and low but growing levels in China.

The U.S. currently has the largest consumer market in the world (Economic Commission of Europe 2005) and the second largest ecological footprint (behind the United Arab Emirates) at 9.6 global hectares per person (WWF 2006). In postwar America, the single family home became the primary purchase and foundation for the consumption society. The home became an expensive purchase around which to ground the consumer economy and to stimulate demand for related products (Cohen 2006). To the American consumer, "home" became equated with a newly-built detached structure outside of the city. As such, the low-density suburban lifestyle came to determine buying patterns. A centrally located shopping center, accessible by car, became the primary location for purchasing goods. The detached single-family home continues to be the most common form of housing in the U.S. today, comprising almost half of all owner occupied units (U.S. Census 2005). The average single-family dwelling in the U.S. tends to be larger than that of the rest of the world, with at least six rooms or more (Economic Commission for Europe 2004) and an average floor space of 185.94 square meters (Energy Information Administration 2004).

The suburban organization of the middle class American lifestyle necessitated and enabled the rapid growth of car ownership, and automobiles remain a primary purchase for many Americans (U.S. Census 2002). Among these, sedans and other small passenger cars are the most popular, but SUVs, minivans and other large passenger vehicles comprise a large segment of the market. In 2002, there were 765 passenger cars for every 1000 people (Economic Commission for Europe 2005), the highest rate of all the regions in this study. Such high consumption rates extend to consumer durables and meat. As Table 2 shows, ownership of household and high technology consumer durables is highest in the U.S. for almost every category. Meat consumption similarly has been historically high in the U.S. and continues to grow, with Americans preferring energy-intensive products like beef (USDA 2003). Of the three regions, the U.S. had the highest overall meat consumption rate in 2003 at 123.42 kilograms per capita and 1045 daily calories derived from animal products (FAO 2008).

Levels of European consumption have historically not been as high as the U.S. and the ideology of controlling waste and reactions to government rationing and controls can be seen to effect how much is spent on what kinds of products. The diversity of European states makes it difficult to determine a common consumption pattern shared across the continent, yet there is a pattern to overall Western European con-

Table 2. Possession of Durable Goods as Percentage of Total Households in 2005

Item	Region		
	U.S.	EU 15	China*
Air Conditioner	78.2	1.86	0.3 (80.7)
Bicycle	43.3	76.6	87.3 (120)
CD Player	61.3	58.2	2.4
Color Television	99.7	97.2	46.8 (134.8)
Computer	69.2	**	38.5
Dishwasher	60.2	42.6	1.5 (.6)
Hi-fi Stereo	75.4	63.7	6.2 (28.8)
Microwave Oven	86	61.7	0.5
Refrigerator	99.4	94.4	6.8 (90.7)
Passenger Car	76.5	45.9	3.1 (3.4)
Telephone	86	91.7	28.4 (94.4)
VCR	87.6	70.1	1.1 (15.5)
Washing Machine	83.3	90.3	2.7 (95.5)

*National average (urban average)

**Data not available

Sources: U.S. Census 2005, Euromonitor 2007, National Bureau of Statistics on China 2006

sumption that can be seen as differentiating it from American buying habits and is useful for comparison at the ideal typical level. In a study of consumer confidence indicators in the European Union, Lemmens et al. (2005) found support for region-based consumer studies in patterns of consumer preference among contiguous countries. Most of the generalizations comprising the European ideal type reflect the members of the EU 15, the mostly contiguous Western European states making up the European Union before expansion in 2004. The data show that while Western Europe does have a high consumption rate on a global scale, levels of consumption are still considerably lower than in the U.S. The ecological footprint of the average European resident was 4.8 global hectares in 2002 (WWF 2006).

Europeans favor more dense urban living to the sprawling suburbs of the U.S. Fifty-two percent of Europeans live in a house (either attached or detached) and 41% live in an apartment (Economic Commission of Europe 2005), making European residences, on average, smaller than American ones, with an average floor space of 87 square meters (Energy Information Administration 2004). Similar to the U.S., cars are the most widely used source of transport, but ownership and use is not as high, as people tend to live in high-density urban areas. 459 out of every 1000 inhabitants of the European Union own a car (Economic Commission of Europe 2005). This reflects a recent increase as car ownership has nearly tripled in the last 30 years. Although SUV and other large car ownership is on the rise, most cars purchased tend to be smaller and more fuel efficient than those in the U.S. (Mortensen 2005).

As shown in Table 2, European spending on durable goods is high, but does not reach the level of the U.S. Rate of ownership of high technology goods and appliances requiring high levels of energy use in particular are lower than that of Americans. Europeans are also frequent and high consumers of meat products, but do not meet the high consumption levels of Americans (Duquesne et al. 2006). In 2003 the European Union had an overall meat consumption rate lower than the U.S. at 91.51 kilograms per capita, per year and 1083.74 daily calories derived from animal products (FAO 2008).

The Chinese consumer profile has changed rapidly over the past three decades as affluence and consumer confidence have grown among the middle class. Consumption in China remains low overall, with an ecological footprint of 1.6 gha (WWF 2006). It should be remembered that the new consumer class is primarily emerging in urban areas so most of the data presented below applies only to cities.

Homeownership is one market that has seen rapid consumer expansion. Davis (2006) found that urban homeownership rose from 15% in 1992 to over 80% in 2002, exceeding the level of urban residence in the U.S. Under Deng Xiaoping, urban housing that had previously been publicly owned and allocated began to be privatized, allowing for affordable housing for city residents (Fraser 2000). In 2001 about 58% of Beijing resident families purchased their home through their former work unit, or government-based employer, at below-market prices (Tomba 2004). By 2002 nearly all of the residential housing in Shanghai had been privatized, creating, literally, millions of first time homeowners eager to decorate and furnish their new home (Davis 2005), and creating a situation similar to the post-war U.S. in which the home became a major purchase around which to organize the developing consumer economy. Along with the new levels of private homeownership, a thriving market for renovations and home furnishings was generated in response to homeowners' desire to create a personal and private environment, not possible under the Maoist system (Fraser 2000; Davis 2000). While home size has traditionally been small, the floor space per household can be seen to be increasing in wealthy urban areas like Beijing and Shanghai (Dhaka 2004).

Cars are a striking example of a prestige item that has experienced rapid growth in China. Car ownership still lags behind the U.S. or Europe, but is growing rapidly in urban areas (Dhaka 2006). In the first half of 2002, 133,000 cars were sold in Beijing alone, contributing to the two million cars already being driven in the city (Tomba 2004). While car ownership is rising, overall ownership remains low compared with the high rates in the U.S. and Europe. In 2005 only 3.37% of urban households owned a car, while bicycle own-

ership remained high at 1.2 bikes per household. Of those urban households that do own cars, the majority are small and fuel efficient, eschewing the larger passenger vehicles such as SUVs popular elsewhere (National Bureau of Statistics of China 2006).

The most rapidly growing market in China is no longer for basic household products since everyday consumer durables such as washing machines and refrigerators have become commonly owned items. By 1999 more than 90% of urban residents already owned televisions, washing machines and refrigerators. Other commonly owned, but not as popular items included air conditioners and CD players. Spending on luxury consumer goods, such as high technology items and designer brands has risen dramatically and China is now the world's third largest consumer of such products. Expensive consumer goods, education and leisure services are now the most popular commodities (Pun 2003). The number of households owning computers rose from 2% in 1994 to 13% in 2004, and mobile phone ownership rose from 10% in 1999 to 48% in 2004 (McEwan et al. 2006).

Meat consumption has also increased dramatically, doubling between 1983 and 1993 alone (Delgado et al. 1999). As with other consumption trends, the number of people eating large quantities of meat are also disproportionately represented in urban areas as these residents tend to have more money and easier access to markets (Huang et al. 1999). Despite this, of the three regions in 2003, China had the lowest overall level of meat consumption with 54.76 kilograms per capita, and a daily intake of 644 calories from animal products (FAO 2008).

Differing Consumer Styles

These consumer profiles suggest that a consumption pattern is emerging in China that currently resembles the European type of moderated consumption, but is backed by an ideology of consumption and development similar to that of the U.S. In the U.S., a long period of material expansion after the Depression encouraged younger cohorts to adopt a lifestyle of high consumer spending, reflecting the economic logic of positional consumption as "keeping up with the Jones." A proclivity to spend without regard to material limits is reflected in the consumer profile of high consumption levels across spending categories. Living in ever-larger houses, high rates of car ownership and large-scale consumption of consumer durables reflect an economic perspective on consumption as status guarantor and driver of the economy. Suburbanization, in addition, enabled and encouraged the use of resource-demanding products such as larger living spaces and cars as a primary source of transportation.

In Europe, persisting ownership and spending patterns

reflect early principles of consumer restraint. A period of slower economic growth after depression, then war, followed by rationing and government controls in the 1950s led to a more moderate consumer pattern that has largely persisted to the present day. In addition, high density housing limits expansion of home size and dependence on car ownership. Rates of ownership of consumer durables remain lower than the U.S. and in some cases, such as air conditioners, televisions and washing machines have already been surpassed by urban Chinese. Underscoring this pattern, consumption across Europe remains politicized, particularly in terms of consumer safety and food quality. Illustrating the importance given to consumer rights across the region, the European Union added a provision for consumer protection in its Charter of Fundamental Rights (Burgess 2001).

These patterns of moderated consumption have persisted despite the strengthening of Europe's economies in the last few decades of the 20th century. Passing on norms of consumer behavior to the next generation then becomes important in considering the lasting effect of scarcity in shaping future patterns of consumer spending. Younger generations in Europe maintain ties with parents as many nations follow a pattern of extended co-residence among parents and adult children (Billari and Kohler 2004), encouraging and instilling patterns of restrained consumerism in the next generation. By contrast, in the U.S., younger generations typically leave home earlier in the life-course, breaking off socialization with older cohorts whose experiences of economic deprivation during the Depression influenced their spending habits (Kobrin 1976).

The recent, dramatic material expansion in China has been coupled with a move to the cities among younger cohorts and away from the spending influences of older generations. Such separation from older cohorts who experienced economic deprivation during the Cultural Revolution contributes to the creation of a young, urban consumer culture. In this environment, similar consumer norms to those of the U.S. are emerging as positional spending is becoming an economic possibility and ideologies of economic development through consumer spending are promulgated by the government. Conspicuous consumption and a leisure-based consumerist culture are emerging among wealthy Chinese consumers to a degree similar to that of the U.S. "Prestige buying" is becoming popular among China's growing young, urban and salaried workers (Pocha 2006), mirroring the economic logic of consumption that emerged in the post-war U.S.

Despite the similarities between the U.S. and Chinese consumption regimes, several central factors of Chinese consumerism differentiate and shape spending patterns. Primarily, Chinese consumers are predominantly younger compared with the aging populations of the U.S. and Europe. Much of

China's youth have been raised as only-children due to the one-child policy, creating an atmosphere of youth-centered consumption. Many consumer dollars have gone toward pleasing the younger generation and investing in the future prospects of one's only child (Davis and Sensenbrenner 2000).

The size of the Chinese population and high levels of urban population density are differentiating factors. The Chinese tend to live in high-density urban apartment-style housing, similar to the European type and typically have not expanded into the suburban-style sprawl seen in the U.S., yet urban sprawl has grown rapidly over the last 20 years as cities have grown (Gu and Shen 2003). The need to accommodate large populations necessitates greater levels of urban residence and discourages suburban expansion due to the space limitations and the desire of state officials to preserve diminishing levels of farmland (People's Daily 2004). "The Chinese version of urban sprawl is the disproportionate expansion of the *urbanized* area" (Zhang 2000, 128, emphasis added), rather than the suburban. A significant factor structuring and feeding this sprawl is a large migrant population not present in the urban U.S. or Europe. Large numbers of low-income migrants have moved to China's cities from rural areas, necessitating a surge in high-density, urban growth (Zhang 2000).

While China's economy is expanding rapidly, consumers' choice is still bound by the country's position as a developing economy in the world-system. This is a third factor that differentiates it from the American and European types. The relatively low wages on an international scale and the undervalued exchange rate hamper overall rates of consumerism on a global scale. I argue that China has been exhibiting a proto-European, or low-consumption-style primarily because of economic constraints on the population due to China's status as a developing country, and because of constraints on expansion at both the individual and societal-level due to the high population density in urban areas. As economic prosperity grows and purchasing power expands, the ideological stance of the Chinese government suggests that the Chinese will abandon a limited consumer style for one that embraces greater levels of spending.

While the Chinese pattern of consumption follows a path similar to the American type of consumption, as a response to these factors, it must remain uniquely influenced by the economic and ecological milieu in which it was shaped. The high population density in urban areas necessitated by China's large population and limited inhabitable land are critical to the structuring of the Chinese consumer pattern. These intractable aspects of Chinese society present firm limits to which China's consumer pattern can converge with that of the U.S. or Europe.

Ecological Implications of Consumption

Consumption patterns have definite ecological implications that can inform patterns of resource management and environmental preservation (Nicosia and Mayer 1976). It is important to consider the "externalities of consumption," or how consumer decisions, individually and collectively, contribute to social and ecological costs (Princen 2002, 27). Collectively-determined cultures of consumption, modes of transportation, disposal of commodities, and long-term consumption planning all have important ecological impacts.

China's consumer class currently comprises only about 12% of the country's population, leaving a potentially large consumer market yet to emerge (Li 2005). Growing economic prosperity and consumer markets make the spending patterns of Chinese consumers an important site for extended inquiry, and studies such as this serve as a useful heuristic device for understanding the ecological implications of societies undergoing rapid social change. Steps toward ecological sustainability can be achieved with a better understanding of what structures the consumption demands of the Chinese population.

Direct effects on greenhouse emissions can be seen emerging from several locations. Increasing home sizes as well as increases in the amount of appliances and IT products being used mean more coal-fired power plant construction and higher levels of greenhouse gas emissions. In addition, the increase in landfills and biomass burning from growing disposal of goods has increased CH₄ emissions. This can be expected to continue as greater levels of garbage are generated (Streets et al. 2001). Increased consumption of IT products poses an additional danger due to toxic substances used in such products. In Chinese cities most CO₂ emissions come from industry, by power plants in particular, but the emissions from transportation are expected to grow over the coming years as car ownership increases (Dhakal 2004, xix). Greenhouse emissions generated by the production of consumer goods remain a problem that will only continue with anticipated growth in consumption.

The high-density, compact nature of Chinese cities mediates and limits consumption. In such an urban environment, cars are less of an asset and public transportation can be utilized to reduce greenhouse gas emissions. In response to growing stresses on roads, for example, Beijing has recently implemented Rapid Bus Transit, a high speed bus system run primarily on natural gas, as an alternative to cars (Liu 2006). Rapidly growing cities can similarly exploit the energy-saving aspects of dense urban living (Environmental Protection Agency 2007) and make use of "green" technologies in future development to encourage more efficient use of natural resources in China. While the rates of recent growth and the

supporting ideology suggest a growing environmental impact, the physical setting of life, moderated by high population densities, suggests limits on the extent of these increases.

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Endnotes

1. E-mail: kstein@sociology.rutgers.edu
2. Due to differences in data collection practices across regions, exactly comparable indicators were not always available. The data presented reflect a compilation of different sources.

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