Agro-food industry growth and obesity in China: what role for regulating food advertising and promotion and nutrition labelling?

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Summary
Taking a food supply chain approach, this paper examines the regulation of food advertising and nutrition labelling as strategies to help combat obesity in China in an era of rapid agro-food industry growth. China is the largest food producer and consumer in the world. Since the early 1980s, the agro-food industry has undergone phenomenal expansion throughout the food supply chain, from agricultural production to trade, agro-food processing to food retailing, and from food service to advertising and promotion. This industry growth, alongside related socioeconomic changes and government policies, has encouraged a ‘nutrition transition’. China’s population, especially in urban areas, is now consuming significantly more energy from dietary fat, which is leading to higher rates of obesity. Regulation of food advertising and promotion and nutrition labelling has the potential to help prevent the further growth of obesity in China and encourage the agro-food industry to supply healthier foods. Government legislation and guidance, as well as self-regulation and voluntary initiatives, are needed to reduce children’s exposure to food advertising and promotion, and increase the effectiveness of nutrition labelling. Policies on food marketing and nutrition labelling should be adapted to the China context, and accompanied by further action throughout the food supply chain. Given China’s unique characteristics and position in the world today, there is an opportunity for the government and the agro-food industry to lead the world by creating a balanced, health promoting model of complementary legislation and industry action.

Keywords: Advertising, food industry, labelling, nutrition transition.

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Introduction
Two policies frequently proposed to help address the global obesity epidemic are the regulation of food marketing, particularly to children and young people, and nutrition labelling. Food marketing (advertising and other forms of promotion) and nutrition labelling (labels on foods listing nutritional information) are considered important, because they both communicate information about food to the public. They are a major means through which consumers learn – and potentially make choices – about food.

Regulating food marketing and nutrition labelling were both emphasized by the World Health Organization’s Global Strategy on Diet, Physical Activity and Health (2004) as potential strategies to address the growth of obesity and diet-related chronic diseases (1). In many western countries, policy development in these areas is underway, but elsewhere, these strategies are still relatively undeveloped as tools to help combat obesity (2,3). In China, regulating food advertising and promotion has hardly been discussed in an obesity prevention context, and nutrition labelling is at a relatively early stage of
development. China presents quite a different context to Europe or North America. Not only is the obesity epidemic at an earlier stage (albeit, as documented in this special issue, a worrying one), but the large-scale agro-food industry is also at a different stage – less developed but characterized by phenomenal growth (Fig. 1).

This paper thus examines the regulation of food marketing to children and young people and labelling as strategies to align food supply chain with healthy diets.

**Examples of agro-food industry growth**

- Meat: 7.4% increase 1982-2002 (world 2.8%)
- Milk/Eggs: 9.7% increase 1982-2002 (world 1.4%)
- Sugar: 5.6% increase 1982-2002 (world 1.8%)
- Veg: 9.2% increase 1982-2002 (world 4.2%)
- Fruit: 11% increase 1982-2002 (world 2.4%)

**Agro-food industry supply chain**

- Agricultural production
- Agricultural trade
- Agro-food processing
- Food retailing/eating outlets
- Food advertising & promotion
- Food purchase and consumption

**Policy drivers behind agro-food industry growth**

- Decentralization of the agricultural production system (1981)
- Reduction of state food procurement from agricultural producers and price controls for non-staple foods (1984/85)
- Elimination of food rationing system (1993)
- Unilateral trade reforms (1990s)
- Accession to World Trade Organization (2001)
- Regional and bilateral trade agreements (2000s)
- Establishment of Special Economic Zones to attract foreign direct investment (late 1970s-80s)
- Policies to open up food sector to foreign participation (early 1980s)
- Policy to open up China to foreign capital (1992)
- Privatisation of food retail; state and municipal government investment in supermarket chains (1980s)
- Gradual relaxation of restrictions on foreign investment in food retail (from 1991) 65% of foreign participation permitted in joint retail ventures and liberalisation of foreign investment in wholesale and logistics services (2002)
- Complete liberalisation of retail sector scheduled for December 2004 following access to the World Trade Organisation
- Active conversion of wet-markets into supermarkets (2003)
- In line with World Trade Organization agreements, foreign agencies permitted to own up to 49% of joint media ventures (2004)
- Government order for provincial level television stations to launch more children’s channels (2004)

**Regulation of food marketing and labelling as policies to align food supply chain with healthy diets**

- Marketing of energy-dense, nutrient-poor foods to children aims to create demand for these foods - and the habit to stay for life - reducing/eliminating it reduces consumer incentives to purchase - and food industry incentives to produce these foods.

**Figure 1** The growth of the agro-food industrial supply chain in China: policy drivers (sources: 4,5,7,8,10-12,14,15,17,19,56–59).
to help combat obesity in China in an era of rapid agro-food industry growth. Taking a food supply chain approach, it first describes agro-food industry growth in China and its drivers.

**Agro-food industry growth in China: a supply chain approach**

**Growth throughout the food supply chain**

China is the largest food producer and consumer in the world. Since the early 1980s, and particularly since the 1990s, the agro-food industry has been expanding at a rapid rate. As shown by Fig. 1, all major components of the agro-food supply chain are growing: agricultural production and trade, agro-food processing, the food retailing and food-away-from-home sectors (e.g. restaurants, fast food) and food marketing (advertising and promotion).

Agricultural growth has been remarkable. According to figures from the Food and Agricultural Organization of the United Nations, production of agricultural commodities have grown at over double (vegetables) to nearly seven times higher (milk and eggs) than average world growth rates since the 1980s (Fig. 1) (4,5). The structure of agricultural trade has also altered. China has emerged as a major agricultural exporter, and while it remains self-sufficient in most food items, it has become a major importer of soybeans and vegetable oils (6). Imports of palm oil and soybean oil grew over eight and 13 times in quantity, respectively, between 1986/1988 and 2003/2005 (7). In 2003, China’s soybean imports accounted for about one-third of all world soybean imports (8).

Growth of the agro-food processing industry is also impressive. The food manufacturing industry has grown at double-digit rates in the past 5 years, with a notable increase of private businesses at the expense of state enterprises. Echoing global trends, foreign direct investment in food processing is also increasing (9). No data are available specific to food processing, but between 1979 and 2000, China received $346.6bn in foreign direct investment, comprising 5.5% of the world’s inward flows. The greatest proportion was in manufacturing, including food manufacturing (10). In 1997, although foreign food companies accounted for just 6.2% of the number of enterprises, they accounted for 20% of output and 31% of gross profit (11). Food processing companies from Europe and North America, such as Danone, Coca-Cola, Kraft, MasterFoods, Nestlé, PepsiCo and Tyson’s, have invested in joint ventures in China.

Although the food retail market remains dominated by small stores, both large-scale domestic and foreign supermarket chains (especially Carrefour and Wal-Mart) are growing fast. The first supermarket in China opened in 1990 and, by 2002, there were over 53 000, representing the fastest growth rate in the world (30–40% per year sales growth) (12). It is widely predicted that supermarkets will be the dominant food retailers in China’s urban areas in the near future. China’s ‘food-away-from-home’ market has also experienced phenomenal growth. It is now 159 times larger than 1978 – the result of the growth of the domestic restaurant industry, but also of foreign chains such as Yum! Brands and McDonald’s (13).

The media has played an important role in the growth of the agro-food industry. The advertising industry has grown extremely rapidly in the past 15 years (Fig. 1). Retail and food formed the third and fourth largest categories of the value of advertising in 2006 (10.3% and 8.5%, respectively) (14). More than half of all advertising is on television and in newspapers – there are thousands of newspapers and magazines in China, and hundreds of television channels. In-store display and sales promotions, sponsorship of television programmes and service-orientated marketing are also proving very important channels. The aim is to encourage consumers – especially younger consumers – to adopt habits for life.

**Drivers of agro-food industry growth**

The growth of the agro-food industry has been driven by a combination of socioeconomic (demand side) and policy (supply side) drivers (12). The two major socioeconomic drivers are income growth and urbanization. Income has grown rapidly in China since the economic reform process first started in 1978 and driven demand for more and different foods. Between 1978 and 2004, per capita nominal gross domestic product increased by 8–9% per year (15). Income growth has been concentrated among urban populations, which grew from 20% of China’s population in 1980 to 40% in 2000 (12). Between 2000 and 2003, average per capita income for the wealthiest 10% of urban households grew at over 15%, relative to 4–5% among rural households; among poorest urban residents, income actually declined (6). Although the greatest income growth has been concentrated among very wealthy groups, it is predicted that a mass urban middle class will continue to grow, creating a new spending force that will further stimulate the growth of the agro-food industry (16). Income has also grown among children and young people in urban areas. It is estimated that in 1999, the approximately 60 million children aged 4–12 years in the largest cities in China spent around $6.2bn of their own money, and influenced the spending of their parents and grandparents of around $61bn, giving them a market potential of around $67bn (17).

Policy drivers behind agro-food industry growth were implemented following the economic reforms of the late 1970s. Policies in the realm of agriculture, trade, invest-
ment, retailing and the media aimed to shift the food market away from centralized planning towards a market-oriented economy. These policies stimulated the domestic agro-food industry and encouraged integration of the Chinese agro-food industry into the global market (i.e. the process commonly termed ’globalization’).

Specific policy drivers affecting each key component of the food supply chain are described on Fig. 1. Agricultural growth was directly stimulated by policies that decentralized and privatized agricultural production (15). Unilateral trade reforms (e.g. reduction of import tariffs, elimination of the state trading monopoly) enabled the rapid increase of imports of soybeans and soybean oil in the mid-1990s (8). Policies on foreign direct investment stimulated the agro-food processing industry both directly by increasing the amount of investment, and indirectly by stimulating domestic competition (11). Supermarket growth was carefully and deliberately planned through a series of government policies designed to encourage domestic and foreign investment since the 1980s, shifts that have also affected the food-away-from-home sector (12). Policy changes have also stimulated foreign companies to form strategic partnerships in advertising and the media, including for children’s programming – an important potential advertising vehicle (18). To compete, the Chinese government ordered domestic stations to launch more children’s channels which experts say is ‘potentially the biggest explosion of children’s channels in any single market the world has ever seen’ (19).

Implications for food consumption

Income growth and urbanization have clearly stimulated changes in food consumption patterns in China. In a ‘nutrition transition’, as incomes have grown, consumers have begun to eat more meat, fish, vegetable oils and processed foods, and fewer basic grains such as rice (6,20,21). This has led to an increase in dietary energy obtained from fat – a primary determinant of obesity risk in China (22). By 1997, over a third of all Chinese adults and 60.1% of those in urban areas already consumed over 30% of their energy from fat (the maximum level recommended by the World Health Organization) (23). At a population level (adults), the average proportion of dietary energy obtained from fat increased from 9% to 28% between 1989 and 2004 (21). Experts suggest that decreasing consumption of vegetable oils and pork products will be critical to reducing dietary fat intake (21).

Although, overall, per capita consumption of branded, processed foods remains small in China (24), the creation of a wealthy urban class and a generation of ‘little emperors and empresses’ (single children in wealthy and middle-class urban families) has driven significant market growth (6,25,26), growth which is predicted to spread as the mass urban middle class grows. Urban spending on food is predicted to grow by 6.7% annually during the next two decades, making China one of the fastest-growing food markets in the world (16). The same trends are likely with eating out: away-from-home spending on food rose from 8% or urban household food expenditures in 1992 to nearly 20% in 2004 (6).

Changing food consumption has not simply been a function of income growth and urbanization. Policy drivers and associated transformations in the food market have also played a key role – an observation supported by econometric analysis (15). Policy changes have directly facilitated increased fat consumption. Calories available for consumption from vegetable oils grew from 141 to 218 calories per capita per day between 1989/1991 and 2000/2002. This increase is almost entirely the result of increased imports, which have been directly encouraged through more liberal trade policies (27). Imported palm oil is now used increasingly in partially hydrogenated form (trans fatty acids) in processed foods. For pork – a fatty meat widely consumed in China – the elimination of state procurement quotas and price controls in 1985 led to a sharp upturn in production, the amount sold in the market (rather than kept for home consumption), and, consequently, calorie availability (28,29). Consumption of vegetable oils, meat and dairy are predicted to further increase as a result of China’s membership of the World Trade Organization because of lower prices (30).

Processed food consumption has been stimulated by investment in agro-food processing, food retailing and advertising and promotion. It is notable that Coca-Cola was the first foreign company to distribute products after the country was opened to foreign investment, and PepsiCo soon followed in 1982 (31). Whereas there are numerous domestic food processors in China, foreign investors dominate the processed foods market (e.g. instant noodles, soft drinks, snacks, sweet biscuits and fast foods) (11). Supermarkets also play a role by providing a greater variety of processed foods and running in-store promotions to encourage consumers to try new products. Advertising and promotion are increasing the importance of brand loyalty as a component of food choice in China. Given their spending power and greater tendency to adopt new habits, children and young people are a particular target (17). The provision of facilities for birthday parties, play areas and educational activities by fast food chains has encouraged children to form a cultural identity with fast food (25). Anecdotal evidence suggests that promotions can be effective. For example, when McDonald’s ran a sales promotion in 2001 (customers had to buy six meals in order to purchase a toy), sales revenues grew by over RMB 2.3m (31). Sales of a sour yoghurt drink promoted during the popular
Super Girl television show more than tripled during one run of the show in 2005 (32).

Aligning the food supply chain with healthy diets

Although growth is very much still underway, the agro-food industry can be counted as one of China’s many economic success stories. Still, as the agro-food supply chain has grown, the Chinese consumer has begun to eat excessive amounts of fat. High-calorie, nutrient-poor processed foods are also emerging as more important in the urban diet. Combined with inadequate physical activity, the result is the emergence of obesity as an expanding health problem. Agro-food industry growth – and the policies that influence this growth – has not therefore been adequately aligned with the growth of healthy diets. This situation highlights the need for intervention to bring the growth of the agro-food industry closer into step with the development of healthy diets among all Chinese consumers.

The importance of aligning the food supply chain with healthy diets has already been recognized by the Chinese authorities. In the report which accompanied the release of the Survey on the Status of Nutrition and Health of the Chinese people (October 2004), the government stated that there was a need to ‘enhance scientific guidance in the fields of agriculture, food manufacturing, distribution and marketing to make them play more important roles in improving people’s nutrition and health status’ (33). This echoes calls in the World Health Organizations Global Strategy on Diet Physical Activity and Health which states that ‘National food and agricultural policies should be consistent with the protection and promotion of public health . . .’, and that the food industry ‘could become partners with governments & nongovernmental organizations in implementing measures aimed at sending positive & consistent messages to . . . encourage healthy eating’ (1).

It is clear from the above analysis that policy changes in China – and the associated growth of the agro-food industry – have been a driver of changing food consumption patterns. It therefore follows that policies could be used to better align the food supply chain with the promotion of healthier eating among the Chinese population.

Regulating food marketing and nutrition labelling are policies that can help align the food supply chain with healthier diets, and both can be achieved through either government regulation and/or industry-led intervention. Figure 1 describes how. First, as the marketing of high-calorie, nutrient-poor foods aims to create demand for these foods – and create lifetime habits and brand loyalty – reducing the amount would reduce consumer incentives to purchase these foods and, importantly, agro-food industry incentives to produce these foods. Labelling foods with nutritional information at point-of-sale, meanwhile, potentially encourages consumers to make healthier food choices, thereby affecting industry incentives to change food product composition, such as reducing fat. Such a regulatory framework can in turn alter the direction of influence (as depicted by the arrows on Fig. 1), so that the agro-food industry has a greater incentive to produce and market healthier foods, as well as consumers to choose them. The next section analyses the policy options available to regulate food marketing and nutrition labelling.

Policies to regulate food marketing and nutrition labelling

Food advertising and promotion and nutrition labelling can be regulated either by government or industry through legislation/statutes or guidelines (government) or self-regulation or voluntary initiatives (industry). These are described in Table 1.

Analysis of policy options for food marketing to children

Table 2 shows the different policy options available to regulate food marketing to children and young people. The
aims of the policies range from encouraging non-deceptive, responsible marketing (improving quality) to reducing exposure to advertising among children (reducing quantity). The aim determines the regulatory strategy adopted, such as banning the use of false claims, the use of words or graphics that directly depict excessive consumption, or the advertising of food altogether.

That these aims vary between different policy options is clear from existing regulation. A review published by the World Health Organization in 2004 showed that globally, a majority of countries have some type of general, ethically based regulation to prevent advertising from ‘exploiting the credulity’ of children or ‘bringing them harm’ (i.e. deceptive, irresponsible advertising) (3). Although statutory and self-regulations coexisted in around 50% of the countries reviewed, the aim of reducing exposure to advertising was found only in government-implemented legislation or statutes, usually in the form of a restriction on the time allocated to children’s advertising on television. In Sweden and Quebec, Canada, where television advertising to children is banned, and Norway, where advertising is restricted on certain broadcasters, regulation is government-led.

The review also found that food was not directly affected by child-specific advertising regulations unless there was a regulation specific to food and an implementation mechanism. Although 22 countries had a clause on food within statutory or self-regulations (not including claims made on foods), these very generally stated that advertising should not directly promote unhealthy diets, and in only one case had a clear implementation mechanism. Even in this case – in the United States – the use of self-regulation meant that the aim of the regulation was not to reduce the exposure among children, but to prevent deception and exploitation of their credulity and limit the use of graphics and words that directly encourage excessive consumption (34).

Since 2004, statutory and self-regulation have been increasingly complemented by voluntary initiatives by the food industry. These are food-specific and do include measures that would reduce exposure to marketing among children (35,36). For example, Coca-Cola, Kraft and MasterFoods – all active in China – have developed policies not to advertise to children under the ages of 12, 6 and 12, respectively, nor to promote products in primary schools (36,37). These voluntary initiatives are intended to be global and have some potential to reduce exposure to marketing among young children. But they are inherently limited if they only apply to (a minority) of individual food companies, not the food industry as a whole, and are not subject to independent monitoring or enforcement. Two (disputed) assessments of voluntary initiatives by critics of the food industry indicate that current industry policies tend to only apply to younger children, seldom cover all marketing tactics, and do not limit core marketing practices to which children are exposed (38,39).

Overall, there has been a trend since 2004 towards greater regulation of food marketing to children and young people (40). For the most part, this comprises voluntary initiatives and self-regulation. The advertising industry has

<table>
<thead>
<tr>
<th>Authority</th>
<th>Type of regulation</th>
<th>Aim</th>
<th>Aspect of marketing</th>
<th>Specific regulatory strategies applicable to obesity prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government (i) Statutory regulation</td>
<td>Reduce deception and exploitation of vulnerability</td>
<td>Quality</td>
<td>Ban false claims about degree of healthiness of food products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comprehensively restrict exposure on all or specific medias</td>
<td>Quantity</td>
<td>Ban on food marketing across all medias or any major medias such as television</td>
<td></td>
</tr>
<tr>
<td>Government and industry (ii) Statutory regulation; Self-regulation to a limited extent</td>
<td>Reduce exposure</td>
<td>Intensity</td>
<td>Limits in certain places (schools), during certain times (e.g. during children’s programming), using certain techniques (e.g. product placement), and in certain medias (e.g. the Internet)</td>
<td></td>
</tr>
<tr>
<td>Industry (iii) Self-regulation</td>
<td>Reduce deception and exploitation of vulnerability and encourage responsible marketing</td>
<td>Quality</td>
<td>Limits on use of specific graphics or words that directly encourage excessive consumption and specific techniques which children may not understand (e.g. product placement); or be particularly vulnerable to (e.g. use of celebrities)</td>
<td></td>
</tr>
<tr>
<td>Industry (iv) Voluntary initiatives</td>
<td>Encourage responsible marketing and reduce exposure among young children</td>
<td>Quality and intensity</td>
<td>Combination of (ii) and (iii), but limited because no clear implementation or enforcement mechanism</td>
<td></td>
</tr>
</tbody>
</table>
developed a united front in developing self-regulations specific to food advertising to children, following the Framework For Responsible Food And Beverage Marketing Communication of the International Chamber of Commerce (2004, revised 2006) (41). As self-regulations, they have more potential to affect quality than quantity (Table 2) (34). Government-led statutory regulation to reduce quantity has been slow to develop. An exception is the UK, where the government’s communications regulator (Ofcom) imposed some restrictions on food advertising to young people in 2006 (42).

Analysis of policy options for nutrition labelling

Specific policies to regulate nutrition labelling and their aims are listed in Table 3. International guidance in the area comes from the Codex Alimentarius, the international food code of the Food and Agricultural Organization of the United Nations and the World Health Organization. The Codex states that listing nutrients has to be mandatory only on foods for which a nutrition claim is made, or if the food is intended for a special dietary use. This guidance is reflected in national regulations on nutrition labelling. A review published by the World Health Organization in 2004 showed that 60% of countries mandated nutrient labelling only on foods which have a nutrition claim or a special dietary use (2). The aim of this form of labelling is to provide information to support claims made on the label.

Just 13% of countries went beyond Codex in mandating a nutrient list on all packaged foods. Mandatory labelling has the additional aim of providing an incentive for food companies to change their product content (because they want to avoid labelling high quantities of nutrients consumers would rather avoid). This is more relevant to obesity prevention as it potentially affects the nutritional content of foods consumed by the whole population. Mandatory labelling of trans fats provides an interesting example. In 2006, the United States implemented new rules requiring food companies to list trans fat content on the nutrition label. As a result, the majority of food companies have made efforts to eliminate or reduce the amount of trans fatty acids in their foods. Likewise in Canada, mandatory trans fatty acid labelling was implemented in December 2005; limited evidence suggests that the intake of trans fats has declined since that time (43). In contrast to this mandatory approach, voluntary labelling creates no such incentive because food companies can decide which foods they want and do not want to label and which nutrients to list.

Nutrition labels, whether mandatory and voluntary, have a key limitation from an obesity prevention perspective: they tend to be far more widely used by more educated consumers already aware of nutritional concerns (2). Moreover, research conducted in Europe and the United States suggests that while many people read and value nutrition labels, consumers often find the numerical information provided difficult to interpret, especially people with poor literacy and numerical skills (44,45).

One proposed solution that explicitly aims to directly encourage consumers to choose healthier foods is so-called ‘front-of-pack’ nutrition labelling, in which the numerical information on the back of the food package is interpreted graphically on the front with an easy-to-understand symbol. Front-of-pack schemes, which can be implemented through government legislation, government guidelines or voluntary industry initiatives, are becoming more widespread in Europe, North America and Australia and New Zealand (46). For example, the United Kingdom’s government food regulator (the Food Standards Agency) now recommends that food manufacturers and retailers adopt a ‘traffic light’ scheme to help consumers easily identify foods high in fat, sugar and salt (47). Companies have also responded with voluntary initiatives. Kraft and PepsiCo have developed voluntary labelling initiatives (‘Sensible Solutions’ and ‘Smart Spot’) to help guide consumers to ‘better-for-you’ foods. The supermarket Carrefour – an important market player in China – has also developed a nutrition labelling scheme for its own-brand products in France. This represents a shift away from the aim of nutri-

<table>
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<tr>
<th>Authority</th>
<th>Policy type</th>
<th>Specific regulation</th>
<th>Aim</th>
</tr>
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<tbody>
<tr>
<td>Government</td>
<td>Legislation/statute</td>
<td>Mandatory nutrient list on foods with nutrient claims or with special dietary uses</td>
<td>Provision of information to back up claims made and to assist people with special dietary needs</td>
</tr>
<tr>
<td></td>
<td>Legislation/statute or government guidelines</td>
<td>Mandatory labelling on all packaged foods</td>
<td>Provision of information and incentive for food industry to amend products</td>
</tr>
<tr>
<td>Industry</td>
<td>Voluntary initiatives</td>
<td>Graphic front-of-pack nutrition symbols</td>
<td>To directly encourage consumers to choose healthier foods</td>
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<tr>
<td></td>
<td></td>
<td>Nutrient list on selected foods</td>
<td>Provision of information</td>
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<tr>
<td></td>
<td></td>
<td>Graphic front-of-pack nutrition symbols</td>
<td>To directly encourage consumers to choose healthier foods</td>
</tr>
</tbody>
</table>

Table 3 Specific policy options to regulate nutrition labelling and aims
tion labelling only as a provider of information, towards the aim of actively promoting healthier food choices. A key question concerning this policy option is whether government action or voluntary industry initiatives are more appropriate. While government guidance may stifle innovation, the use of different symbols by different food companies (backed up by different nutritional criteria) could well confuse consumers.

**Policy options for China**

Regulating food marketing and nutrition labelling are policies that can potentially help re-align the Chinese food supply chain towards healthier diets. But which options could or should be applied in China?

As always, there are many considerations that need to be taken into account when evaluating policy options. Four considerations are particularly important in the China context. First is the phenomenal growth of the agro-food industry. The agro-food industry is growing through both demand and supply side drivers to provide more food to more people. This is counter to one of the aims of regulating food marketing and labelling: to encourage consumers to eat less of certain foods (in this case, high-fat foods). As found in the United States, dietary guidance to ‘eat less’ tends to be politically unpopular with the agro-food industry (48). But the fact that the industry, and the mass market for processed foods, are still growing, indicates that taking action now will be more effective than waiting until later for the tide to turn completely.

Second is the consideration of the culture of regulation. China is a country that, despite its shift to a market economy, has a tradition of government-led regulation and is still strongly guided by state intervention. Third is consideration of the existing regulatory environment on food marketing to children and young people and nutrition labelling. Current regulations in China are described in Box 1; none are specifically targeted at obesity prevention. Concern about advertising targeted at children does, however, appear to be on the rise. A survey carried out in 2001/2002 of 1665 parents in three major Chinese cities indicated that parents are dissatisfied with child-targeted advertising on the basis that it is biased and does not tell the truth (17). In March 2006, a delegate to the National People’s Congress tabled a bill before the Chinese parliament which would ban the use of children under the age of 12 years from appearing in advertising and would restrict advertising directed at children under the age of 13 years (49). There is also a reported increase interest in nutrition labelling.

Fourth is a consideration applicable in any country: the nature of the policy options themselves (Tables 2 and 3). Analysis in this paper shows that only some of the options are likely to be effective for obesity prevention, i.e. market-regulations specific to food that aim to reduce exposure among children and young people rather just simply reducing deception and improving quality and nutrition labelling that actively aims to promote healthier diets rather than simply provide information. It also shows that government legislation and guidance is needed in order to stimulate effective, industry-wide change, but there is space for self-regulation and voluntary initiatives to achieve complementary aims.

These considerations lead to key policy implications. First, action is needed now to regulate food marketing to children and young people and nutrition labelling. Second,
this action should aim to actively promote healthier diets and reduce exposure to negative dietary influences, rather than just prevent deception or provide information. Third, government needs to spearhead this action by developing legislation and regulations and providing strong incentives for self-regulation and voluntary initiatives by the industry. The culture of regulation in China implies that government is in a position to take a strong hand, especially given their past and ongoing action to regulate the advertising sector (Box 1). Fourth, threat of government action and the declining popularity of marketing methods among parents create an incentive for the agro-food industry to adopt voluntary initiatives which can complement government action. Both government regulation and self-regulatory and voluntary industry initiatives are needed to align the food supply chain more closely with healthier diets.

Conclusion

To conclude, the time is ripe for China to join the global trend towards greater regulation of food marketing to children and young people and nutrition labelling to tackle obesity. These policies have their limitations. Most notably in the Chinese context, products high in fat, such as pork and vegetable oils, are unlikely to be significantly affected by policies that dominantly affect processed foods. Thus, to align the agro-food supply chain with healthier diets, regulating food marketing and nutrition labelling would need to be accompanied by actions throughout agro-food industry supply chain.

Policies would also need to be carefully designed for the China context. For example, research conducted in Taiwan, China suggests that adolescents do not understand the information provided on nutrition labels and seldom read them (50). Thus, action on nutrition labelling would need to be accompanied by an education campaign to promote their use and understanding. Another study found that consumption of processed potatoes (e.g. French fries and crisps) was not influenced by television advertising, but in-store displays promotions were likely to have played a role (51). Thus regulation of marketing should focus on the retail industry as well as the advertising industry.

Overall, government intervention is needed now to create a framework for positive industry action and better align the growing agro-food supply chain with healthier diets to help tackle growing obesity in China. Lack of earlier action in Europe and North America is a warning of what will happen if action is not taken soon. China also has the benefit of being able to learn from the experience of the different policy options implemented elsewhere in selecting effective strategies to regulate food marketing and nutrition labelling. Given China’s unique characteristics and position in the world today, there is an opportunity for the government and the agro-food industry to lead the world by creating a balanced, health-promoting model of complementary legislation and industry action.

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Conflict of Interest Statement

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