

 <i>Centro Interuniversitario di Economia Applicata alle Politiche per l'Industria lo Sviluppo Locale e l'Internazionalizzazione</i> • Università degli Studi di Ferrara • Università degli Studi di Firenze • Università Politecnica delle Marche • Università di Napoli - L'Orientale	c.MET Working papers ISSN: 2281-5023
---	---

CHINESE DEMAND FOR HEALTH AND BUSINESS OPPORTUNITIES FOR WESTERN MEDICINE INDUSTRIES. HOW INDUSTRIAL POLICY MIGHT ENCOURAGE THE LINK

Marco R. DI TOMMASO, Lauretta RUBINI, Stuart O. SCHWEITZER

ABSTRACT

The analysis starts from the recognition of the difficulties that both Europe and the US are facing in dealing with the current economic crisis and of the emergence of a new middle class in China with increasing needs in terms of welfare. This paper suggests that the exportation of high-quality, health-related goods and services from the West to China could represent a possible way to support knowledge-intensive sectors in Europe and the US on one side, while allowing a growing part of the Chinese population to access advanced health goods and services on the other. In terms of industrial policy, this means to facilitate the destruction of barriers to entry in the China market (unfair competition, predominance of traditional Chinese medicine and producer-consumer information asymmetries) but also the creation or the enforcement of innovation networks that are a pre-requisite to maintain a high quality level in the production of Western Medicine products and services.

Keywords: health industry, Western Medicine, China

Keywords: R&D collaboration; project failure; public research institutions

JEL Classifications: O32; L14

Stuart Schweitzer
University of California Los Angeles, US
sschweit@ucla.edu

Lauretta Rubini
University of Ferrara, Italy
lauretta.rubini@unife.it

Marco R. Di Tommaso
University of Ferrara, Italy
ditommaso@economia.unife.it

**c.MET Working paper 07/2014
December 2014**

© 2014 by Marco R. Di Tommaso, Lauretta Rubini, Stuart Schweitzer. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

1 - Introduction¹

China's growth and the birth of a new middle class

During the last three decades, the People's Republic of China has experienced an exceptional process of growth and industrial development. It has been an uninterrupted process that has created a substantial increase in personal incomes in most parts of the country. This unique process of continuous and radical change has been guided and carefully regulated by the Chinese government (Di Tommaso et al., 2012; Yuan and Ming, 2007; Goodman, 2013; Popescu, 2013, only to cite some). Thanks to a carefully planned set of economic policies, incomes have risen so much that there is now a substantial class of people with discretionary incomes and tastes for improved consumer goods and services (Wang, 2013; CMB, 2014). And, as it is reasonable to expect, this increasingly important middle class has sanctioned and granted its consensus to such economic development policies, in a sort of “reverse causality” and self-reinforcing process.

Europe's and the US's search for economic recovery

Europe and the US are finding that current measures to promote economic recovery from the 2008 recession are insufficient. While some countries have experienced moderate economic growth, the path has been so slow that large groups seem to be “left-behind”. And for many other countries, there has been hardly any recovery and growth, at all.

Economic policy-makers, not unexpectedly, have proposed different solutions to this long-standing stagnation. Important voices have urged austerity, which has inhibited new private and public investment. Austerity has a depressing influence on popular expectations, which is one reason for reduced private demand, consumption, and production (Corsetti and Muller, 2012; Blyth, 2013). The other policy position has advocated public expenditures and industrial policy actions (Di Tommaso-Schweitzer, 2013) but political constraints in both Europe and the US have inhibited these initiatives.

The path through these two opposing arguments goes through structural adjustment. One example of this path is the identification and development of important exports that would increase overall demand and production.

We feel that such a possibility would be substantial increases in exports of goods and services to emerging countries – goods and services that are demanded in such countries but cannot yet be produced there. Addressing the increased demand for advanced

¹ This paper has been elaborated in the framework of CHETCH project activities. CHETCH is funded by the European Union under the Marie Curie Action's IRSES. This publication does not necessarily reflect the opinion of the EU

health care services by China's new middle class is likely to represent an opportunity for both parts.

2 – China's Demand for Health Care and Western Medicine Supply

Demand expectations and government response in China

Middle class expectations in China have changed substantially and nowadays they go well beyond the historic needs of subsistence (Tsang, 2014; Goodman and Robinson, 2013). Today, the Chinese government still seems sorely unable to satisfy these increased needs in such areas as environmental quality, housing, food quality, culture, and health care, restraining in this way the continued economic and social development (Di Tommaso, *et al.* 2014). The current new ruling middle class has great expectations in terms of quality of life and more sophisticated benefits that could be associated with their growing income. The capability of meeting these expectations can be considered the crucial current challenge for China (Wang, 2013). In fact, it is likely that the sustainability of the whole economic, social, and political system is dependent on the economy's ability to satisfy these emerging demands. Political leaders, local, and central government authorities seem well aware of such a challenge. This means that the exchange between legitimization and consensus *a' la chinoise* requires better education, better housing, better urban quality, better environment, ... and better health care (Di Tommaso, *et al.* 2014).

Characteristics of the European and American Health industries: From Domestic Demand to Global Supply

In Europe and in the US, the high demand for health is typically a source of concern. And now, during austerity times, this concern is even more evident than in the past (Di Tommaso-Schweitzer, 2013). However, a different perspective can be adopted (Di Tommaso-Schweitzer, 2005; Di Tommaso and Rubini, 2007; Branston *et al.*, 2005). A very high demand for health care goods and services can be also considered an opportunity for the development of the economies in industrialized countries. Why is this? Because the magnitude and the quality of this demand for health has been accompanied by the development of highly sophisticated national industries. Health demands both in Europe and America have continuously grown in the last decades. This is because the aging of populations, the introduction of new technologies (some of which resulted in increased life-spans as well as in improved quality of life). Also important are the rising expectations of population. As people become more aware of new capabilities of health care (because of factors such as improved education levels or increased access to new information

technologies that reduce the information asymmetries between consumer and provider and allow immediate and low-cost comparisons), their demand for accessing new health-related high-tech goods and services increases. The rise of this demand has driven the growth of health industries able to satisfy needs and expectations of large, very demanding and highly educated populations. This resulted in the substantial growth of industries able to offer high-level medical equipment, supplies, treatments, pharmaceuticals and management techniques.

For decades, both in America and in Europe, the development of the health industry has been traditionally based on the domestic market. However, in recent years tighter austerity measures and public health expenditure constraints have limited its appealing. At the same time, an expanding world-wide demand for health offers new opportunities for national health industries to expand and innovate, transforming a strictly domestic sector into an export industry. And the growing demand from emerging countries would certainly accelerate and drive this path of change. In the last decades international trade of health care equipment and supplies has grown - as has the cross-border flow of patients (sometimes called “medical tourism”). Ironically, medical tourism has become an important industry in both industrialized and emerging countries. Other great opportunities in terms of exportation of health-related goods and services are represented by internet-based activities. Not only has e-commerce of items grown steadily in these last few years, but the new technologies have allowed to un-link various services from the territory (for example blood testing or telemedicine), enabling consultations with experts through conference calling or transmission of real-time clinical information, such as electrocardiogram or radiographic data, and creating new “export” channels for health-related activities.

Understanding the Chinese Demand for Health Care

China today is the world’s most populous country, with over 1.3 billion people and it is reported to be in 2011 the third largest market for pharmaceuticals (Zhou and Li, 2013). As important as these numbers are, it is even more important to focus on the different subgroups of this huge population and, especially, to understand the demographic dynamics and the expected changes in population socio-demographic characteristics. Especially important are possible variations in age, gender, income, education, and territory. These are all factors that heavily affect the demand for healthcare, even if there is still much that we do not know about the direction and intensity of the effect of these variables on health and on the demand for health services.

In order to favor the export of Western health-related products and services to China, the first step requires to better understand the demand for health care services by the Chinese population. In particular, the initial focus should be on the middle-age and elderly

urban middle-class population, which is better educated, wealthier, less attached to tradition and, in general, more desirous of Western medical care. The health problems affecting this group of people and the use they make of medical care services is important because they represent the first and largest demanders of augmented health services.

The analysis should of course include population trends. In particular, two trends stand out. The first is the rapid growth in the number of elderly in China. Life expectancy has increased steadily in the last decades. Between 1970 and 2010 it has passed from 63.5 to 79 years for females and from 60.4 to 72.9 years for males (Yang et al., 2013). Today 160 million Chinese are older than 60 years and this population subgroup is expected to grow up to 200 million in 2015 and to over 300 million by 2030 (United Nations, 2014b). Another relevant group of consumers is represented by children. Nowadays there are approximately 160 million one-child Chinese families, representing over 40 percent of Chinese households. This is an incredible number of people, that in this decade are demanding very specific health goods and service (United Nations, 2014a). And this number could increase in the future, even if we do not know yet what effect the government's partial relaxation of the one-child policy will have on birth rates. While, in fact, the policy might be expected to increase birth rates, world-wide data suggest that, usually, rising incomes are accompanied by smaller families. Nonetheless, even forecasting a zero-growth rate in the Chinese population in the future, the current number of children is already large enough to represent an important component of the Chinese demand for high-quality health care products and services.

Barriers to Exploiting the Synergies

Developing policies to foster the exportation of European and US health industry products and services will preliminarily require the definition of the proper tools to overcome the numerous barriers to entry in the China market. Actions will have to focus primarily on different kinds of barriers, such as those related to unfair competition, to the underlying paradigm of Traditional Chinese Medicine, or to asymmetries between producers (health providers) and consumers (patients). This kind of barriers is not specific of China, but it is instead universally observed in every health system.

The first category is maybe the more articulated and the one where a proper set of industrial policy measures could have the strongest effect. Barriers to trade have been disputed and discussed in many bilateral and multinational negotiations with China in the last decades. Many observers argue that China continues to pursue policies limiting market access for imported manufactured goods, agricultural products, and services. In the specific case of health care, this issue applies primarily to goods and services that are highly sophisticated and deeply rooted in western medicine knowledge that is not well-diffused in China. These characteristics tend to make the entry of new products and new services in

China slow and uncertain. This uncertainty about the outcome and the timing of the required administrative procedures is by definition a barrier to entry and a deterrent for foreign company entrants. Moreover, counterfeiting and trade secret thefts are other strong obstacles to the entry into the Chinese market. There is no doubt that the compliance with the Intellectual Property Rights (IPR) regulation is one of the major issues that needs to be addressed. In particular in IP-intensive good and services, which prevail in health care settings, the effective protection and concrete enforcement of IPR is a crucial need. Since China's entry in the WTO some progresses have been made, but many issues are still source of concern both in Europe and in the US. Traditional and online sales of counterfeit goods (starting from the sales of active pharmaceutical ingredients) continue to be a serious problem (see, among others, Fackler, 2002; Newton et al., 2006; Bate, 2008). In this setting, foreign companies entering the Chinese market with innovative goods or services might quickly witness the establishment of new Chinese competitors (in China and abroad) able to imitate them without being forced to pay any foreign fees for intellectual property rights. And these unfair competitors might stay in the position of operating with impunity for a long while if Chinese authorities are reluctant to recognize and sanction such infringements.

All these threats are, by definition, strong deterrents for foreign companies' potential entry into the Chinese market and they need vigorous policy actions. To remove these barriers that clearly inhibit exports of American and European goods and services, foreign policy has to play a crucial role. This is a vital field of policy action in order to encourage exports and sales of legitimate IP-intensive goods and services related to the provision of health care. Continuous bilateral and multilateral engagements to discuss Intellectual Property Rights enforcement in China are crucial aspects of the export oriented growth strategy we had discussed above. It is also necessary to promote a steady dialogue with Chinese authorities at all the different levels (local, regional, national, supra-national). When appropriate, taking concrete steps to enforce rights within the WTO has to be considered another crucial field of action.

Another obstacle to the entry in the Chinese market is connected to the policies that the Chinese government is implementing for the promotion and the development of its own industrial system, including the health care industry. The Chinese government offers substantial financial, regulatory and strategic support to its state-owned enterprises (SOEs) but also to the private ones attempting to upgrade and move up the economic value chain. In this scenario Chinese policy makers today are utilizing all the traditional industrial policies tools that have already been experimented over the years in many other countries: Picking-the-winner practices, infant industries protections, support to university-industry technology transfer, exploitation of public procurement demand, incentives to patenting, investment in high education and university research are typical examples of how the

Chinese government operates, while pursuing its national strategic goals (Di Tommaso-Schweitzer, 2013 and Di Tommaso *et al.*, 2012).

Other hindrances to the entry of Western health providers in the Chinese market are related to the wide “cultural” distance that characterizes the involved countries. First of all a great part of the Chinese population still strongly relies for the treatment of their diseases on traditional medicine, which is totally different from the consolidated western health practices (Hillier and Jewell, 2013; Spigarelli and Wei, 2014). Secondly, in the case of the provision of services coming from physically and culturally distant producers, the information asymmetry that already normally characterizes the patient-provider relation, become even wider and could be a deterrent in the use of specific “western” treatments.

In this framework, the issue is how the US and European governments should act. What kind of industrial policy actions are necessary to promote at international level the American and European health industries in such a complicated, but promising, context? (Di Tommaso-Schweitzer, 2005 and 2010).

Can Western Health Industry Supply, and the Chinese Demand for Health Care Be Linked?

The core hypothesis of this paper is that turning knowledge-based European and American health care systems into major export industries has the potential of fueling growth at this critical time when measures to exit the recession are dramatically needed. At the same time, this process would allow an improvement in the quality of health-related services provided in China, in coherence with the new demand expressed by the increasing middle class in the country.

Linking a complex export-oriented growth and anti-recession strategy to new economic and population trends in China implies a substantial structural adjustment of American and European economies. The assumption is that Chinese market has the potentiality of driving this structural change. But this matching of EU and US supply and Chinese demand faces several obstacles including potential barriers placed by China (as the importer), and the large culture gap between the European and American attitudes toward medical care and those in China. However, the need for this sort of connection is so important to all of the nations involved that it is well-worth exploring and, perhaps, exploiting.

3 - How Industrial Policy in favor of Western Medicine industries might encourage its growth in China. Let’ start from R&D needs.

Given that each of the above mentioned challenges and obstacles wait for answers, in this final remarks we focus on Western Medicine Industries innovation capacity.

What seems in fact absolutely unavoidable by the European and American health-related producers is to continue to invest in quality and innovation. Innovation is the necessary condition to maintain the leadership in the production of the high-quality goods and services able to answer to the current healthcare demands expressed both in domestic markets and by a growing amount of population in emerging countries, and in particular in China.

The capacity to offer high-quality and innovative products and services depends on a multiplicity of factors.

First of all innovation is the result of deliberate company strategies and of their efforts in R&D investments, which in turn directly affect firms' performance (Wakelin, 2001; Barbieri et al., 2010; Sher and Young, 2005).

Innovation is also affected by the public policies implemented by the government, even if the literature is not in agreement with the final impact they have on firms' performance and on private investment in R&D (see, among others, Petti et al., 2013; Almus and Czarnitski, 2001; Wallsten, 1999).

Finally, innovation is also in many cases the result of collective behaviors involving a plurality of different subjects. There are innovative processes where universities and companies are co-producers of knowledge, in a bi-lateral technology transfer that has been widely debated in the literature. But this two-dimensional picture is far too simplistic, especially when we deal with knowledge-intensive sectors such as those related to health.

The increasing complexity of the innovation process requires a set of "n-way relationships", in which a network of actors (companies, institutions and academic actors) collectively generates knowledge (de Faria et al., 2010; Katz and Martin, 1997). These actors can be clustered in geographical proximity (Di Tommaso et al., 2006) - similarly to what has characterized the Italian industrial districts - but they can also be embedded in national and international networks, including very different participants (Patel et al., 2014; Rubini, 2010; Santos et al., 2013). For example, in the case of health, the networked innovation process could involve hospitals, universities laboratories, clinics, research centres, spin-off companies, small and medium-sized enterprises, large firms and multinationals. Each of these actors have its own mission, its own objectives, its own financial constraints and its own strategies and the real challenge becomes to find ways to allow for an orchestra made of such different instruments to play together. When this happens, results are proved to be much better than innovative processes carried out in isolation, allowing also for the production of spillover effects and positive externalities (Landry et al., 1996; Hagstrom, 1965; Dodgson, 1994; Powell et al., 1999; Rubini, 2010).

In this framework the implementation of industrial policy measures aimed at fostering the creation of multi-lateral innovation networks involving western and Chinese actors seems to have a high potential in overcoming some of the barriers that have been described in the previous sections. For example, projects could be launched with the

participation of western producers, Chinese health institutions, and researchers coming from both sides. In this way, not only working with Chinese partners could allow a “sweet” entry of European and American firms in the domestic market, but it could also help overcome the diffidence of Chinese consumers due to cultural distances (for example also working on possible ways to integrate traditional and western practices). Probably, a good starting point could be to select some Chinese territories from where starting to implement a selected number of pilot projects that could also be a source of valuable information on market trends and local demand needs. In this framework, the coastal areas, such as the Guangdong or the Zhejiang provinces, are particularly interesting for several reasons. First of all these are the areas where the process of opening of the economy started, and they are more acquainted with the presence of foreign funded firms. Secondly here are located some top level universities and research centres, along with relatively advanced health care service providers that could be reliable partners in possible joint projects. Finally, these are the richest areas of the country, and therefore those where the percentage of people belonging to the emerging middle class is higher.

References

- Almus, M. and Czarnitzki, D. (2001), "The effects of public R&D subsidies on firms' innovation activities: The case of Eastern Germany", *Journal of Business and Economic Statistics*, 21(2), pp. 226-236.
- Barbieri E., Iorio R., Lubrano Lavadera G. (2010), "Incentivi alla Ricerca e Sviluppo in Italia: una indagine sugli effetti della legge 46/82", in *L'Industria – Rivista di Economia e Politica Industriale*, 2/2010, pp. 335-366.
- Blyth M. (2013), *Austerity. The history of a dangerous idea*, Oxford, Oxford University Press.
- Branston J.R., Rubini L. and Sugden R. (2005), Healthy governance: Economic policy and the health industry model. In Di Tommaso, M.R. and Schweitzer, S.O. (eds.), *Health Policy and High Tech Industrial Development*, Cheltenham, Edward Elgar Publisher.
- CMB (China Merchants Bank) (2014), *2013 China Private Wealth Report*, China Merchants Bank and Bain & Company.
- Corsetti, G. and Müller G. (2012), "Has austerity gone too far?", *Vox*, EU, 2.
- de Faria P., Lima F. and Santos R. (2010), "Cooperation in innovation activities: The importance of partners", *Research Policy*, 39(8), pp. 1082-1092.
- Di Tommaso M.R., Paci D., Rubini L. and Schweitzer S.O. (2006), *Is Distance Dead? High-Tech Clusters Analysis And Policy Perspectives*, in Pitelis, C., Sugden, R. and Wilson, J.R. (eds.), *Clusters and Globalisation: The Development of the Economies*, Cheltenham, Edward Elgar.
- Di Tommaso M.R., Rubini L. (2007), "Industrial policy for 'new' industries in 'old' Europe: virtual cluster in genetics in Italy", in *International Journal Healthcare Technology and Management*, 8(5), pp. 503-521.
- Di Tommaso M.R., Rubini L. and Barbieri E. (2012), *Southern China: Industry, Development and Industrial Policy*, Milton Park Abingdon United Kingdom, Routledge.
- Di Tommaso, M.R., Schweitzer, S.O. (2013), *Industrial Policy in America: Breaking the Taboo*, Cheltenham England: Edward Elgar Publishers.
- Di Tommaso, M.R., Schweitzer, S.O. (2010), "Academic Knowledge Production and Transfer. Policy targets and implications for the Health Industry", in *International Journal Healthcare Technology and Management*, vol. 11, n. 4.
- Di Tommaso M.R. and Schweitzer S.O. (eds.) (2005), *Health Policy and High-Tech Industrial Development: Learning from Innovation in the Health Industry*, Cheltenham England: Edward Elgar Publishers.
- Dodgson M. (1994), *Technological collaboration and innovation. The handbook of industrial innovation*, Edward Elgar, Cheltenham.
- Goodman, D. S. (Ed.) (2013). *China's regional development*. Routledge.
- Goodman D.S. and Robison R. (Eds.). (2013). *The new rich in Asia: Mobile phones, McDonald's and middle class revolution*, Routledge.
- Hagstrom W.O. (1965), *The Scientific Community*, London and Amsterdam, Southern Illinois University Press.

- Hillier S.M. and Jewell T. (2013), *Health care and traditional medicine in China 1800-1982*, Routledge.
- Katz J.S. and Martin B.R. (1997), “What is research collaboration?”, *Research Policy*, 26 (1), pp. 1-18.
- Landry R., Traoré N. and Godin B. (1996), “An econometric analysis of the effect of collaboration on academic research productivity”, *Higher Education*, 32 (3), pp. 283-301.
- Patel P.C., Fernhaber S.A., McDougall-Covin P.P. and van der Have R.P. (2014), “Beating competitors to international markets: The value of geographically balanced networks for innovation”, *Strategic Management Journal*, 35(5), pp. 691-711.
- Petti C., Podetti S. and Rubini L. (2013), “Innovazione in Cina: chi è il vero imprenditore?”, in *L'Industria – Rivista di Economia e Politica Industriale*, 34(3), pp. 433-447.
- Popescu G.H. (2013), “The Social Evolution of China’s Economic Growth”, *Contemporary Readings in Law and Social Justice*, (1), 88-93.
- Powell W.W., Koput K.W., Smith-Doerr L. and Owen-Smith J. (1999), “Network position and firm performance: Organizational returns to collaboration in the biotechnology industry”, *Research in the Sociology of Organizations*, 16(1), pp. 129-159.
- Rubini L. (2010), “Transfer of knowledge in science-based research networks: a case study on human health genetics in Italy”, in *International Journal Healthcare Technology and Management*, 11(4), pp. 304-324.
- Santos J., Doz Y. and Williamson P. (2013), “Is your innovation process global?”, *Sloan Management Review*, 45.
- Sher P. J. and Yang P. Y. (2005) “The effects of innovative capabilities and R&D clustering on firm performance: the evidence of Taiwan's semiconductor industry”, *Technovation*, 25(1), pp. 33-43.
- Spigarelli F. and Wei H. (2014), “The Chinese pharmaceutical market: driving forces and emerging trends, in *L'Industria – Rivista di Economia e Politica Industriale*, 35(3), pp. 505-530.
- Tsang E.Y.H. (2014), *The New Middle Class in China: Consumption, Politics and the Market Economy*, Palgrave Macmillan.
- United Nations (2014a), *Concise Report on the World Population Situation 2014*, United Nations Department of Economic and Social Affairs, UN Publications, Washington.
- United Nations (2014b), *Profiles of Ageing 2013*, United Nations Department of Economic and Social Affairs, UN Publications, Washington.
- Wakelin, K. (2001) “Productivity growth and R&D expenditure in UK manufacturing firms”, *Research Policy*, 30, pp. 1079-1090.
- Wallsten J.J. (1999), *Do government-industry R&D programs increase private R&D? The case of the Small Business Innovation Research Programme*, Department of Economics Working Paper, Stanford University.
- Wang Z. (2013), *Why China’s new rich want to emigrate*, *The Diplomat*, 5th Nov.
- Yang G., Wang Y., Zeng Y., Gao G.F., Liang X., Zhou M., Wan X., Yu S., Jiang Y., Naghavi M., Vos T., Wang H., Lopez A.D., Murray C.J.L. (2013), “Rapid health transition in China, 1990–2010: findings from the Global Burden of Disease Study 2010”, *The Lancet*, 381(9882), pp. 1987-2015.

Yuan, W.Y.Z.Y.Z., and Ming, C.Z.L. (2007), “On China's Development Model: The Costs and Benefits of China's Decentralization Approach to Transition”, *Economic Research Journal*, 1.