

U.S. Experts Thoughts on the HNTE Program

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1. Introduction

This report reflects the work of three U.S. experts who have studied China's HNTÉ program as a contribution to the S&ED Innovation Dialogue. Each section of the report was the responsibility of a specific expert. The author is noted for each section. All three experts recognize that this is a dialogue, and are eager to learn from our Chinese colleagues. The analysis in this paper will be refined when our Chinese colleagues supply requested data and their own draft report.

This paper begins with a brief review of why the HNTÉ program is on the agenda of the Innovation Dialogue and a history of the program's implementation. It then asks: even if the HNTÉ program is perfectly implemented, is its basic approach to promoting technological innovation the best way to achieve this goal? It then turns to a number of issues about how the HNTÉ has been implemented to date. And it concludes with some suggestions about policy options for the Chinese Government.

2. The Basis for Discussion of the HNTÉ at the Dialogue (Cowhey)

Modern studies of long-term economic growth cite increases in knowledge (and investments in "human capital") as the key to rising productivity, the central engine of growing prosperity for society. Economic studies show that faster rates of knowledge creation and innovation in one country have "spillover" effects benefiting other countries. Pursuing the potential for the "win-win" situation of both China and the United States becoming more effective at innovation is a worthy goal of this Dialogue. To achieve the best outcome, we should pursue the best policy practices for achieving innovation. And we should be careful to avoid any government measure in one country that can distort the world market and harm the welfare of other countries.

Governments can enable faster innovation by investing directly in research, development and education, as well as by providing incentives for the private sector to step up innovation. Government incentives for the private sector to do research and development are common, because R&D produces an "externality", or "spillover", of new knowledge. Even after patenting, new discoveries create knowledge that circulates freely and benefits everyone. (For example, once a new technology has been proven possible, it helps both academic researchers and future competitors who can discover alternative paths to the same end.) Because of this externality, the individual innovative firm cannot appropriate the entire gain created for society by its research; therefore, governments provide a supplemental incentive to induce firms to step up their research efforts. The HNTÉ program is one such incentive system.

The prior S&ED Innovation Dialogues have set the stage for this policy assessment of HNTÉ. Both China and the United States have entered into the TRIPS agreement at the WTO (Trade Related Intellectual Property Services). WTO obligations set one framework for the broad discussion of innovation at the S&ED. The Dialogue has also affirmed that innovation policies should be consistent with the following principles: non-discrimination; support for market competition and open international trade and investment; strong enforcement of intellectual property rights; and, consistent with WTO rules, leaving the terms and conditions of technology transfer, production processes and other proprietary information to agreement between individual enterprises. At the 2012 and 2013

Dialogues, China and the United States also agreed to treat intellectual property developed or owned overseas the same as domestically owned or developed intellectual property (IP). This followed after the Chinese Government pledge not to link IP criteria in any form to procurement as a result of discussions with the U.S. Government over the “Indigenous Innovation Product Accreditation for Government Procurement.”

At a minimum, as discussed later, the HNTE, as implemented, may conflict with some of these agreed upon the principles of non-discrimination and technology transfer, especially in its treatment of intellectual property. Moreover, even if implementation problems were resolved, there is a basic question about whether the HNTE is the wisest general approach to stimulating commercial innovation.

3. A Summary of the HNTE Program and its History (Goodrich)

China’s HNTE program became effective in early 2008, although it was an outgrowth of previous tax benefit programs administered by China’s Ministry of Science & Technology (MOST) since 2000. For the purposes of this paper, we describe only the current program in its existence since 2008.

The HNTE hailed from China’s Medium and Long-Range Plan for Science & Technology Development (referred to as the MLP) which was developed by the Chinese State Council in 2006 and called for China to establish an “innovative society” by 2020, with innovative sectors of the economy accounting for nearly 60% of GDP. The MLP also set in motion a number of critical policy measures that the State Council determined were essential for pushing China to meet its innovation goals, including the development of a tax policy that would encourage firms to increase their innovation and R&D activities. It was under this context that the HNTE program was drafted and developed by MOST in consultation with China’s Ministry of Finance and the State Tax Bureau (the latter two responsible for the fiscal and taxation aspects of the program). In addition, it was in 2007 that China’s preferential corporate income tax program for foreign-invested enterprises was phased out. It was at this point that corporate income tax rates for both Chinese and foreign-invested enterprises started to equalize, with the HNTE program thus providing the only significant PRC preferential tax policy rate, making it an especially notable policy.

At its core, the HNTE program provides a 15% corporate income tax rate (as compared to the 25% national rate) for firms that are able to qualify according to the requirements defined in the HNTE Assessment Administration Measures (2008), Recognition and Administration of HNTE Enterprises (2008), and an HNTE Industry Catalogue (2008). In general, firms must meet the following requirements in order to qualify for HNTE status:

- Be legally registered in China
- Own the intellectual property for the key technologies of products
- Fall within one of the following eight industrial sectors:
 - Electronic information technology
 - Biological and new pharmaceutical technology
 - Aviation and aerospace technology
 - New material technology
 - High technology service industry
 - New energy and energy conservation technology

- Resources and environmental technologies
- High and new technology for traditional industries innovation
- Meet specific R&D and science & technology personnel targets
- Meet specific R&D expense targets
- Generate threshold profits from HNTE products

The process to become qualified as an HNTE enterprise is mainly administered by local Chinese provincial governments, although more recently this has begun to change. When the HNTE Program began in 2008, according to the “Administration” HNTE measures, filings for applying to be considered for HNTE status were made by potential HNTE firms with their S&T Administrative Authorities in their respective province, which was supervised by a national Leading Small Group for the Administration of the HNTE Program. Despite some of the more onerous requirements to comply for the HNTE program, such as a global IP licensing model in order to meet the indigenous IP requirement, that dissuaded a large number of companies from applying, a significant number of foreign enterprises were able to work with their local governments to successfully receive HNTE qualification.

Yet in 2012, China’s government led by MOST began tightening implementation of the HNTE program to follow more closely the requirements laid out in the HNTE Administrative Measures. Specifically, MOST in 2012 established a national inspection committee to review HNTE applications, as the Ministry believed a wide number of firms in China were qualifying for HNTE status based on falsified information as reported to their local S&T departments. According to information gathered by US business groups representing foreign firms in China, this new inspection mechanism has significantly decreased the flexibility local governments once had to grant HNTE status based on limited information provided by the application or waive specific requirements all-together.

4. The Merits of the Underlying Approach to Innovation in the HNTE (Cowhey)

The HNTE is a “tax expenditure” program to stimulate private sector innovation. (In a tax expenditure a government uses a selective cut in tax levels to induce innovation by firms rather than direct spending by government.) There are two basic approaches to tax expenditures to stimulate research innovation. One approach is front-loaded; it allows the company to deduct some part of the cost of research from its taxable income. The United States Government has two such measures. It allows for the full and immediately expensing of R&D costs as a deduction from income. And it has a temporary tax credit for qualified R&D that is above the baseline of the firm’s R&D. (This has the formal title of the Research and Experimentation Tax Credit.) The other approach is back-loaded; it reduces the tax rate on total profits for firms with qualified research programs. (See Martin Sullivan, “Will International Tax Reform Slow U.S. Technology Development?” Tax Notes, Nov 4, 2013.) Various national schemes for lower tax rates on “patent boxes” (found in several OECD nations) or the Chinese HNTE program are back loaded programs.

Many countries, including China (e.g., R&D expenses super-deductions) employ a combination of front-loaded and back-loaded approaches to encouraging innovation. (See OECD Report, Summary Description of R&D Tax Incentive Schemes, Apr 3, 2014).

As implemented in various countries, both front-loaded and back-loaded tax incentive programs (and mixed programs) have numerous variations and computational complexities. However complicated the details, front-loaded programs are less likely to have the unintentional effect of

distorting the market and the incentives of individual firms for three reasons. The first is that it aligns incentives of the firm with the justifiable reason for subsidy; it reduces the cost of research by some margin to compensate for the “externality” created by the dimension of new knowledge that benefits everyone for free. The purpose of the subsidy should not be to reward all of the activities of the firm, as is the case with a back-loaded program; it should only reward the research activity.² The second is that a front-loaded program is a simpler way to relate the cost of research that is being subsidized to the calculation of the subsidy. This means that the program is less subject to administrative uncertainties and possible forms of discriminatory treatment. The third, which is important to MOST, is that a program like the R&D tax credit is more easily monitored to see if it is changing behavior of the key input, R&D, because it can be calculated as a credit for an increase over a baseline expenditure by the firm. Thus, the tax return itself gives a clear calculation of the change in behavior. It also could be linked to another more easily observable input to local innovation, investment in human capital, as used in MOST’s requirements for the share of technical workers in a qualifying firm.

The U.S. tax deduction and tax credit programs are non-discriminatory (in that they are available to U.S. taxpaying subsidiaries of U.S. and non-U.S. firms), and eligibility does not depend on intellectual property (IP) licensing practices by the firm. They are also proportionate to the gap between the social value of a firm’s research and the value of the research to the firm. In 2008, the deduction program cost about \$2.75 billion and the tax credit amounted to 3.2% of the \$263 billion expenditure on R&D by companies in the U.S. (Laura Tyson and Greg Linden, “The Corporate R&D Tax Credit”, Center for American Progress, January 2012) While there are numerous proposals to simplify and update the calculations for the tax credit and to move it from temporary to a permanent status, the deduction and tax credit program together both stimulate innovation and are unlikely to have unintended consequences that distort the incentives for firms or the behavior of the market.

As noted in OECD data, R&D incentives continue to evolve at a rapid pace. Many countries are introducing or reforming their R&D incentives; some are making their incentives more generous while others are targeting their tax expenditures more closely. Almost without exception, countries are putting in place stricter eligibility requirements, requiring detailed but application essential-only documentation and enforcing their requirements for incentives more rigorously. Moreover, it should be noted that many countries offer ad hoc negotiated incentives for large scale capital and workforce investments.

² A second justification for tax credits related to innovation pertains to situations where there are large societal benefits from a technological transition that are not fully captured by firms or customers during a period of transition for reasons ranging from insufficient agglomeration effects (an economic eco-system of many complementary inputs has yet to be established among suppliers) to information costs delaying adoption by consumers. In the United States, in 2014 the Obama Administration has advocated for front-loaded programs to encourage two such transitions, the development of advanced technology vehicles (such as plug-in, electric motor vehicles) with a tax credit and energy efficiency investments in commercial building property through a deduction for the investment expenses. There are similar tax credits provided for investments in alternative energy (wind/solar) production and low-income housing development. In these cases the credits are designed especially to incent adoption of the changes because there are numerous transition costs (such as uncertainty about the availability of plug-in locations). This justification is not the primary rationale for the HNTE so we do not explore it here. (U.S. Department of the Treasury, General Explanations of the Administration’s Fiscal Year 2015 Revenue Proposals, March 2014)

Despite the constantly evolving and varied landscape of worldwide IP incentives, there are some principles – appropriateness of scope, transparency, non-discrimination between foreign and local firms, ease of administration, flexibility and consistency with commercial realities and market competition – that may provide a basis for evaluating and making suggested improvements for particular incentive programs like HNTE.

5. Review of Issues Posed by the HNTE as Implemented

Globalization and the growth of the digital economy have led to increased development and exploitation of an ever wider range of intangible assets by multinational companies. Companies take varied and sophisticated approaches to managing their intellectual property portfolios. These approaches are determined in the context of a company’s business and overall supply chain structure. Often this is a dynamic process, and tax is only one among several commercial and legal factors that inform these choices about global business structuring. Strategies may take into account the benefits and risks of centralization versus decentralization of IP development and ownership, non-tax legal differences relating to ownership versus licensing, where relevant personnel are located, local non-tax incentives, flexibility to deal with future business change, among others.

In this context, it appears that the requirements and certain aspects in the implementation of the HNTE program are difficult for foreign companies to satisfy and maintain.

a. Focus on the enterprise rather than the income item (Chun)

Eligibility for the HNTE regime is determined on a legal entity basis, as opposed to focusing on an innovation-related item of expenditure or income. It appears that HNTE’s determination of eligibility at the legal entity level is unusual among international approaches to incentivizing innovation activity through the system of taxation. In order to qualify for HNTE status, a company must meet several criteria as to its legal formation, employee base, IP ownership, and R&D related revenue and expenses. The focus on a legal entity arguably makes HNTE both over- and under-inclusive as an incentive program. It is potentially over-inclusive because the HNTE tax incentives are extended to income and expenditures not related to innovation conducted by the qualifying company. The approach is potentially under-inclusive because HNTE tax incentives are not available to the desirable innovation activities of non-qualifying companies.

Moreover, HNTE’s focus on requirements on a legal entity basis in effect requires a single legal entity to conduct both manufacturing and R&D activities. This may not be consistent with the supply chain choices (e.g., centralized manufacturing hubs or R&D hubs) that a multinational company has made for commercial and non-tax reasons. It may also be restrictive taking into account other jurisdictions’ legal systems.

b. Clarity of the requirements for the IP provision (what is indigenous) (Goodrich)

One of the critical components of the HNTE program is the requirement for “indigenous intellectual property” owned and registered within China. While Chinese authorities have asserted that

“indigenous IP” is a term that refers to “self-held” IP by any firm in China, in practice it has usually been interpreted to include only IP created and registered by Chinese legal entities in China. As per the HNTA Administrative Measures, IP registered outside of China does not qualify for HNTA status. Thus local Chinese enterprises have an automatic advantage to their foreign counterparts, whose IP is usually registered in their home country’s jurisdiction.

The requirement for indigenous IP or technology transfer may conflict with the S&ED commitments to keep technology transfer as a matter for voluntary contractual agreement between firms. And, as implemented, it creates an automatic advantage for Chinese firms that clashes with the non-discrimination principle.

c. Worldwide IP licensing (Chun)

The HNTA requirement for a 5-year exclusive worldwide can be inconsistent with the business practices of multinational firms. There is anecdotal evidence that this requirement discourages participation in the HNTA system. Requiring ownership by Chinese subsidiaries or exclusive global licensing of IP as a matter of the design or implementation of HNTA can be overly restrictive for both Chinese and foreign firms. Moreover, it is potentially contrary to the goal of non-discrimination between Chinese and foreign firms in that it would appear to be more straightforward for Chinese-headquartered firms to own their global IP in their home jurisdiction than for foreign firms to own global rights to IP in a Chinese subsidiary. The normal inclination of companies will be to exploit IP within their company in the most efficient way possible on a global basis. It is highly unlikely that such goals are consistent with a global exclusive license in China.

d. Failures in transparency and predictability (Chun)

We understand that some of the HNTA regulations are not explicit, such that authorities in different localities may have different interpretations regarding the requirements for qualification. Furthermore authorities at the national level may have different interpretations than local authorities. A lack of transparency and/or predictability decreases the effectiveness of the HNTA regime, both for participating companies and those who choose not to apply.

e. Issues about the audit process and data confidentiality (Goodrich)

The HNTA program requires detailed information regarding the applicant enterprise to be submitted to Chinese government authorities when both applying for HNTA status and the related audit. Some of the information required by local authorities has little relevance to the firms R&D activities, and or could be considered business confidential information or personal information of employees. Given China’s S&T government authorities are also responsible for promoting the innovative ability of local Chinese enterprises, there is an inherent conflict of interest. These reporting requirements also appear to be growing more extensive with the added scrutiny from the new national-level HNTA inspection

committee. The risk that specific business confidential information could be passed on to or shared with local Chinese firms has likely dissuaded many foreign firms from applying. We note that Chinese law in the area of antitrust has adopted provisions requiring that Chinese officials treat information provided for the purposes of regulatory review process as confidential, yet concerns still remain.

f. Drag on government resources and enterprises, and distorts the incentives of the firms (Chun)

The HNTE program's focus at the legal entity level presents administrative and compliance burdens for applying companies, qualifying companies, and the Chinese authorities who are monitoring HNTE status. Rather than effecting the HNTE incentives through the existing corporate income tax regime as is the case in many countries (including the United States), the HNTE program creates a separate compliance process for applying for and maintaining HNTE status. We understand that from application through the audit process, the HNTE process can require the involvement of the local Bureau of Science and Technology office, the National Audit Office, the Ministry of Finance, the Ministry of Science and Technology, and the State Administration of Taxation and their provincial equivalent. In addition to the differing interpretations between authorities that may arise of HNTE regulations and the resulting decrease in transparency, these additional administrative costs decrease the attractiveness of the HNTE regime for foreign companies.

6. Suggestions

- a. Eliminate retroactive penalties (Estoppel). (Cowhey)** The transition from provincial to central government administration of the HNTE has created substantial uncertainty for firms both looking forward to renewals (how will the program's administration change) and in looking back on past administrative decisions. This uncertainty about past benefits may lead to discounting the expected future benefits from the HNTE, thus reducing the effectiveness of the incentive policy.

As far as we know, there have been no charges of misconduct in the administration of the HNTE program by the provinces although the Chinese Government may wish to modify the interpretation of the HNTE rules in the future. In US law, there is a broad doctrine of "estoppel." Simply stated, if a firm has acted in good faith when complying with the guidance of the relevant government agency, then this is a defense against being penalized by another government agency for its actions. In this case, if a firm was deemed to qualify for the HNTE tax preferences by a provincial government and acted accordingly, it should not be subject to a reversal of those past tax benefits by the central government. (Estoppel does not prevent the government from changing its policy for future actions.) We note that the doctrine of estoppel is not an absolute ban on retroactive changes to government decisions, but it is a kind of "wise practice" that sets a base line of legal expectations. Exceptions should only be for strong special reasons.

In the case of assessing past provincial decisions on HTNE, estoppel may be a prudent guideline for China. Indeed, there is already a provision in article 84 of the Chinese Law on

Legislation that has some elements of the broader doctrine of estoppel. Article 84 reads: “Laws, administrative regulations, local regulations, autonomous regulations, separate regulations and rules shall not be retroactive, but the regulations formulated specially for the purpose of better protecting the rights and interests of citizens, legal persons and other organizations are excepted.”

b. Modify the requirement for ownership or a 5-year global exclusive license. (Chun)

Loosening the HNTE requirement for ownership or exclusive licensing rights may increase uptake in the HNTE regime while still furthering the objective of encouraging innovation in China. Ownership of core IP in China or exclusive 5-year global licenses is inconsistent with normal IP management practices of multinational companies that emphasize flexibility and business-determined IP management strategies. Non-exclusive global licenses and/or exclusive licensing rights in China only would be more attractive to potential HNTE applicants while still encouraging innovation-related activities by Chinese subsidiaries.

c. Clarify that information required for approval process does not include confidential business information. (Chun)

The HNTE application and audit process should limit official information requests to information that is pertinent to determining that the applying company is sufficiently engaged in innovation-related activity. To the extent that such information is proprietary or sensitive for applying companies or employees, such information should be treated as confidential information with customary protections and assurances. We note that Chinese law in the area of antitrust has adopted provisions requiring that Chinese officials treat information provided in the merger review process as confidential. For example, Article 41 in the Antimonopoly Law provides that submitted information should be kept confidential, and confidentiality is also provided for information submitted in merger reviews in Article 16 of the “Measures for the Examination of Concentrations of Business Operators” issued by MOFCOM. We believe that similar administrative guidance would be appropriate in the HNTE context and may help to increase company participation.

d. Create a multi-stakeholder group of experts to draw up a list of what would constitute sufficient evidence. (Cowhey)

The interpretation of what constitutes qualifying intellectual property is a particularly large source of uncertainty for foreign firms. One way to improve on this situation is to improve transparency in decision-making, and make greater use of an organized process for gathering advice from experts on intellectual property management in global firms (including firms originating from China). As these comments have noted, global intellectual property management has become a very complex process that requires deep expertise.

Properly done, this advisory process can both make policy decisions better informed and reduce uncertainty by raising transparency. Two examples of options for processes are the administrative notice and comment system and the multi-stakeholder advisory process. The administrative notice and comment system is central to most mature, market-based economies. It requires a government agency to post a draft of proposed rules, and the explanations for the choice of rules, and then allow an appropriate period for public comment (e.g., comments by legal/tax experts and firms). The final rules include an

explanation of how they have, or have not, changed in light of the public comments. A variation on this system is to create a public advisory committee representing a full spectrum of relevant expert stakeholders. The committee then provides comments on proposals; in some countries the public agency will leave the drafting of detailed rules to the advisory committee and then the agency modifies the draft as it deems appropriate. The advisory committee allows a more focused group of experts to work on a sustained basis in an issue area while maintaining transparency.

e. **MOST should initiate an experts review of economic gains from the HNTE program compared to other innovation policy tools (e.g., grants, R&D commercialization).**

(Goodrich) Academic literature and industry practice have proven that a wide number of policy tools have the ability to stimulate innovation, including basic R&D grants and start-up funds for SMEs. As all government resources are finite, it is critical to understand the merits in each policy tool to realize the maximum gain in innovative productivity. Given the HNTE program incurs a sizable loss of Chinese fiscal revenue due to lowered corporate income tax rates, it is quite possible that larger gains could be made if similar fiscal resources were invested in more productive/efficient policy tools. We suggest that MOST and the US Government initiate a joint research project to (a) measure the net impact the HNTE program has on innovation gain in China compared to the overall fiscal revenue loss, and (b) compare those innovation gains from the HNTE program to other policy tools that incur a similar expenditure in fiscal revenues. The aim of this effort would be to explore more effective and pro-market competition methods to promoting an innovative Chinese economy.