K4D | Knowledge, evidence and learning for development

Review of tax incentives and their impacts in Asia

Kelbesa Megersa
Institute of Development Studies
30 Sept 2019

Question

What are the best estimates of revenue expenditures (in the form of exemptions or incentives) against various taxation regimes at national and international levels? The estimates should capture (a) the impact on tax receipts (b) lost/gained revenues across tax regimes and c) the benefit to businesses.

Contents

1. Overview

This rapid literature review **summarises the existing evidence on tax incentives and their consequences (i.e. benefits and costs) in Asia**. This report provides a review of academic papers, policy briefs, and other reports on the topic.

As a means of **promoting investment in Asian countries, tax incentives have been widely used.** However, there are conflicting arguments about the effectiveness of using tax incentives to promote investment. In some circumstances, **tax incentives may be effective, but they also pose** several challenges, including **tax revenue losses, distortion of resource allocation in** the economy, and additional complexity in the tax system. (Oxfam and UN, 2016; IMF et al., 2015; IFS, 2018)

Even if there are **some reports and studies that estimate the revenue costs of tax incentives**, they are **limited in scope and accuracy**. First, tax incentives involve complex rules – i.e., they may be specific to the type of investment, economic sector, size of enterprise, employment characteristics, geographic region, time period, etc. Second, tax incentives are not just exemptions or rate reduction – and may involve a wide range of complex policy mix (see Annex 1). These may also rapidly evolve overtime following international economic trends (i.e. where regional countries often outcompete each other to attract the same pool of international investment). Third, there are a range of direct effects (e.g. simple measures of direct revenue loss equalling the size of exemptions) and indirect consequences (e.g. gains in investment, economic growth, employment, technology transfer, spillover effect to other sectors, etc.). Thus, it may be difficult to accurately measure the overall effect of tax incentives - since the negative effects may be offset by positive effects to varying degrees (often based on local institutions and international factors). Fourth, since studies on the topic are forced to focus on a specific type of incentive (i.e. for simplicity and precision), it is daunting to arrive on a specific country-level estimate. Even more difficult (and less reliable) is the effort to evaluate multiple countries using comparable estimates (see Sections 2 and Annexes).

For these reasons, the **literature (and this report/review)** will be **mainly specific to the scope of each study and respective country**. Further, brief notes on the difficulties linked to research methodologies and political economy of developing countries (i.e. while estimating costs of tax incentives) are given in Section 4.

This report also does not exhaustively cover the experiences of all Asian (South and East) countries. The list of countries covered is, rather, selective and dependent on the availability of suitable literature.

A brief summary of the key studies reviewed by the report is provided below. The findings from these studies (and their respective tax incentive regimes) will be discussed further in later sections (see Section 3).

- A study from **India** on the impact of a location-based (and sector focused) tax incentive scheme by Chaurey (2016) found:
    - Sizeable increase in employment, output, fixed capital, and number of firms.
    - Significant economic gains (i.e. employment, output, capital, etc.) were attributed to both growth of existing firms as well as the entry of new firms.
    - New entrant firms were larger and more productive.

- No evidence for the relocation of firms (or spillovers) in industrial activity between the provinces with and without tax incentives.
- Wages of workers rose but there was no evidence on changes in housing rents or migration across regions, i.e. between regions with and without incentives.
- Cost-benefit assessment showed a gain of 0.11–0.36% of GDP in the regions with tax incentive.

- An investigation into tax incentive regimes and their efficacy in **Vietnam** by Oxfam and UN (2016) found:
  - Close alignment between tax incentive and rises in investment, rapid export growth and economic growth – in the period since the 1980s.
  - Private investment's share of total investment nearly doubled since early 2000s – reaching 43% in 2015.
  - Major and flagship Foreign Direct Investment (FDI) projects (e.g. Samsung's Bac Ninh and Thai Nguyen projects – contributed to 20% of exports in 2015) were lured into the country.
  - Costs of incentive policies in 2014 were estimated at 1.85% of Corporate Income Tax (CIT) revenue.

- An impact assessment of various incentive policies in **China** within the Special Economic Zones (SEZ) by Cheng (2015) found:
  - Contribution to GDP growth of 1% to 2% per year, over 5 years.
  - No evidence that the incentives caused inter-regional labour reallocation.
  - Evidence for hastening shift of employment away from the agricultural sector
  - Gain of 20% - 26% of county revenues (i.e. counties hosting the SEZs with tax incentive) within 5 years of the commencement of SEZs.

- An investigation into the effectiveness of tax incentives targeting R&D expenditures by firms in **China** by Jia and ma (2017) noted:
  - 10% decrease in R&D user costs led to a 3.97% rise in R&D expenditure.
  - Substantial rise in R&D expenditure of private firms, but little effect on state owned enterprises.
  - Lower political intervention was noted to be complementary to R&D tax incentives
  - No explicit assessment of revenue loss from the programme. However, overall implication is that the benefits outweigh the costs.

- A study from **Taiwan** by Yang, Huang and Hou (2012) on the efficacy of tax incentives on R&D activities in the manufacturing sector reported:
  - Positive effect of R&D tax credit on R&D expenditure, particularly for businesses in the electronics sector.
  - The tax incentive program was estimated to have represented one third of Taiwan's total annual tax revenue shortfall.

2. Quantifying the potential revenue loss due to tax incentives in Asia

2.1 Using 'tax expenditures reports'

One of the most common ways of measuring the direct costs of tax incentives is through **'tax expenditure'.** Tax expenditure can be defined as "government revenues foregone as a result of differential or preferential treatment of specific sectors, activities, regions, or agents" (Tyson, 2014).

- Gupta (2018) reported tax expenditures in India that were around 5% of GDP in 2013. The figure for Philippines (in 2011) and Pakistan (in 2014) was below 2% of GDP.
- Gupta (2018) also reported that tax expenditures in India were around 30% of total tax revenue in 2013. In Philippines (in 2011), they represented over 10% of total tax revenue.

However, Gupta (2018) notes that **such tax expenditure estimates are not regularly produced in many developing and emerging economies**. World Bank (2015) and CARI (2019) note that only the Philippines and Papua New Guinea compute and report tax expenditure estimates in the East Asia and Pacific region. Keen (2015) highlighted that such reports are becoming common in the region (such as in India, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka), although he argues the figures are "often crude".

Nevertheless, even if such reports are being increasingly prepared by ministries of finance or revenue authorities, often they may not be freely communicated and made publicly available. The search for tax expenditure reports in the region (while preparing this report) so far yielded just that of India (See Annex 3).

- According to **the latest tax expenditure report from India** (from Ministry of Finance, 2018), tax expenditure for financial year 2016-17 was estimated at Rs. 1,30,184.41 crore.
- 'Accelerated depreciation' represented the highest amount from a long list of tax incentive regimes (Rs. 66,350.44 crore)
- Across different economic sectors, deductions availed by units located in SEZ, businesses engaged in generation, transmission and distribution of power, companies engaged in development of infrastructure facilities and for production of mineral oil and natural gas accounted for a substantial portion of the total tax incentive (see Annex 3 and Ministry of Finance, 2018).

2.2 Using 'effective tax rates'

A latest **background paper** written in 2015 as a joint effort by the International Monetary Fund, the World Bank, the United Nations and the Organization for Economic Cooperation and Development offers a practical **summary of various ways of conducting tax incentive cost-benefit analysis**.

- The IMF, WB, UN and OECD (2015) paper **emphasizes methodologies for estimating lost tax revenue** without accounting for behavioural response and characterizing variation in tax burdens generated by tax incentives across businesses using effective tax rate (ETR) models.
- Researchers interested in measuring tax incentive policies are more and more adopting this method. (e.g. Crespi et al., 2016; Wiedemann and Finke, 2015; Abbas and Klemm, 2013; Klemm and van Parys, 2012)

In all Asian countries (Except for Hong Kong, which offers accelerated depreciation for certain assets) **incentives offered as tax holidays and reduced tax rates provide the largest benefits for investors** (see Figure 1 below). As Wiedemann and Finke (2015) note:[1]

- In **Singapore, Vietnam, Laos, Indonesia and China** the **average ETR is lowered by half or more of the original tax burden,** as a result of incentives.
- A **tax holiday of 15 years** reduces the **average ETR for investments in Singaporean industries to 7%.**
- The **tax incentives in Vietnam and Thailand also reduced ETRs below 10%.**
- Meanwhile, **Indonesia** and **China**, two territories where the average ETR for a standard investment is above average, become even **more attractive** than low-tax jurisdictions such as **Cambodia**.
- The **highest average ETR** for preferential tax treatment in the region (i.e. 22.6%) was provided to investments located in **special economic zones in India**.
- Overall, ETR is (on average) reduced by 8.6% points for investments in the whole Asia-Pacific region - excluding the territories for which no incentives have been modelled by Wiedemann and Finke (2015) (i.e. Australia, Japan, New Zealand and Taiwan).

See: Figure 1: Revenue loss (%) as measured by Impact of tax incentives on the Effective Tax Rate (average), Source: Wiedemann and Finke (2015: 16), http://ftp.zew.de/pub/zew-docs/dp/dp15014.pdf

2.3 Using 'redundancy ratio' of tax incentives (based on investor surveys)

According to James (2013), the **'redundancy ratio' measures the proportion of investors who would have invested even without the presence of tax incentives.** The tax incentives ratio is usually obtained through investor surveys.

[1] However, these results would alter if one considers the cross-border investment of an investor whose home country uses the credit method as the US does. Such a tax regime makes the investor's tax incentives gains to almost completely fade. In the case of reduced tax rates or full exemption, investment is still taxed at the higher rate of US tax. The tax incentive simply shifts the tax revenue from the host country to the home country. In this case, it is useful to pay attention to the conditions that must be met by the investment in order to be eligible for the incentives mentioned above. If incentives for different targets are considered at the same time, a comparison of investments with and without incentives in each country will result in more robust conclusions than a comparison between jurisdictions. (Wiedemann and Finke, 2015)

James (2013) shows that **the redundancy ratio may be very high in some countries.**

- Using investor survey results, he reported redundancy rates of more than 50% in many developing countries. Some Asian countries such as Malaysia also had redundancy rates that are more than 80% (Oxfam and UN, 2016).
- Older figures for Thailand (in 1999) also showed a redundancy rate of 81%. The same figure for Vietnam was 85% (in 2004). These high redundancy rates showed that many investments are carried out not necessarily because of tax incentives (James, 2013).

3. Evidence from empirical studies in Asia (businesses, tax receipts & incentive regimes)

3.1 India

Chaurey (2016) studied the impact of a location-based tax incentive scheme in India. He used both aggregate and firm-level panel data.

Brief Study details:

- **Tax regime with incentive**: Location based and sector specific tax incentives (CIT and excise exemptions, investment subsidies)
- **Areas of Impact (outcome)**: Employment, total output, fixed capital and number of firms
- **Time period analysed**: 2000- 2008
- **Type of analysis:** Empirical; difference-in-difference and cost-benefit analysis on firms across regions within India

Tax regime/Incentive:

Starting in 2003, the Government of India (central government) decided to provide the following **incentive package in order to attract industrial investment and create employment in the states of Uttarakhand and Himachal Pradesh**.

- **New industrial units established in 'designated' industrial estates/growth centres were to benefit from**:
  - 100% excise duty exemption for a period of 10 years from the date of starting commercial production.
  - 100% corporate income tax exemption for an initial period of five years - and subsequently between 25% and 30% for a further period of five years.
  - All new firms and established units (with considerable expansion) in the notified locations would qualify for capital investment subsidies equal to 15% of their investment in plant and machinery, subject to a ceiling of Rs. 3 million (roughly USD 50,000).
  - All these exemptions were available to established industrial units depending on their "substantial expansion", i.e. if they raise the value of fixed capital investment in plant and machinery by at least 25%.
- A list of 'thrust sector' industries was gathered that would be eligible for the benefits listed above, regardless of whether they were in an industrial estate or not.

These **tax exemptions were for the taxes collected by the central government**. Overall, firms resident in India are taxed on their worldwide income from all sources at corporate income tax rates at 30% (for domestic corporations) and 40% (for foreign corporations). Central excise duty rates ranged from 8% to 16%. **These tax exemptions were big enough to encourage/attract firms to enter the country.**

Impacts of the Incentives (benefits to businesses and the economy):

- At the aggregate level of the state-industry:
    - **large increases in employment (43 %), number of factories (31 %), total output (56 %), fixed capital (71 %) and industrial wage bill (41 %) were observed** in the treatment states (i.e. states with tax incentive) relative to the control states (i.e. other states without the tax incentive).
    - Although the magnitude of the effects are large, the results should be seen relative to the low industrial base prior to the implementation of the policy in the two states.
    - By 2007/08, **the tax incentive had produced a total of nearly 33,000 jobs, between 550 and 630 factories, and about 8 billion rupees in industrial wages.** (These findings provide an approximation of the combined effect of the entry of new firms and growth of existing firms following the policy change)
- The **results at the firm level** revealed the effect of the policy on existing/established firms, **which was also a considerable change**.
    - On average, firms that already existed in the states with the incentive increased employment (7.5–11 % ; from an average of 39.63 employees before the policy change), output (8.7–18 % ; from an average of about 110 million rupees prior to the policy change) and added plant and machinery (25–28 %) to firms in control states.
- The **total government revenue loss was estimated at Rs. 73.9 billion (USD 1.15 billion).**
    - Since these are public funds, they also result in a direct tax burden and a marginal cost of welfare linked to the acquisition of revenues. This is due to the marginal cost of public funds (MCFs). The study used a value of MCF equal to 1.247 and this resulted in a total cost to the government of Rs. 88.7 billion (i.e. Rs. 73.9 billion × 1.2). Consequently, (and given the range of MCF values), the cost to the government was estimated to be between Rs. 73.9 and Rs. 88.7 billion.

Overall effect on tax revenue:

- **A cost-benefit analysis showed net benefits from the tax policy change in the range of Rs. 6.5–21.3 billion (USD 101–332 million)**. This roughly equalled **0.11–0.36% of the combined GDP of the two particular states** which introduced the incentives (i.e. Uttarakhand and Himachal Pradesh).[2]

[2] Combined state GDP for Himachal Pradesh and Uttarakhand in 2007–08 was Rs. 598.6 billion (USD 9.6 billion (Chaurey, 2016; p. 117).

3.2 Vietnam

A research report by Oxfam and UN (2016) provides a detailed discussion on the development of Vietnam's tax incentive regime and its effectiveness.

Brief Study details:

- **Tax regime with incentive**: Location based and sector specific tax incentives
- **Areas of Impact (outcome)**: Employment, total output, fixed capital and number of firms
- **Time period analysed**: post 1980s, particularly post 2000
- **Type of analysis**: Descriptive

Tax regime/Incentive:

- The **tax incentive regime in Vietnam is relatively complicated.** Incentive coverage is based on a long and scattered list of eligibility incentives (business areas and locations) set out in the Investment Law of 2005.
    - 30 encouraged business sectors and 27 particularly encouraged business sectors are given tax incentives.
    - Tax incentives are awarded in 'encouraged areas' in terms of geographical location, including districts and cities in 53 out of 63 provinces in the country.
    - Furthermore, high-tech zones, economic zones, industrial parks and export processing zones are also entitled to incentives for corporate income tax.
- Another **characteristic of Vietnam's current tax incentive system is the integration of social policy goals into tax incentive policies, such as gender equity issues**. Nevertheless, the question of how these tax incentives have attained preferred social goals, including gender goals, has not so far been addressed by relevant stakeholders, such as academic institutions, development actors and government agencies.
- **Corporate income tax (CIT)**: Exemption for income from farming, husbandry, processing agriculture and aquaculture products and salt production of cooperatives, income from License transfer for waste reduction.
    - Reduced CIT rate of 10% and 20% are available for 15 years and 10 years respectively (compared to the standard tax rate of 20% from 01/01/2016)
    - Tax holiday: Maximum CIT exemption of 4 years and 50% CIT reduction of 9 years (this depend on projects)
    - Carrying loss: Corporates can carry their loss up to 5 years
    - Accelerated depreciation: Maximum rate cannot exceed twice the ordinary rate of depreciation
    - Other situations: Corporates with high percentage of women workers, corporates with percentage of ethnic minority workers
- 50% **Personal income tax (PIT)** reduction for individuals working in the economic zones; reduce 9 million VND/month for taxpayer and 3.6 million/month for dependents and other situations in which the individual face difficulties due to natural disasters

    - PIT exemptions: this covers certain types of income such as - Interest earned on deposits; Compensation paid under life/non-life insurance policies; Income from transfer of properties between various direct family members; Income of Vietnamese vessel crew members working for foreign shipping companies or Vietnamese international transportation companies.
- **Import duty exemptions**:
    - goods imported for projects which are listed as encouraged sectors; machinery & equipment, specialized means of transportation and construction materials to form fixed assets of certain projects if such goods could not be locally produced;
    - import duty exemption for raw materials, spare parts, accessories, other supplies, samples, machinery and equipment imported for the processing of goods for export and
    - import duty exemption of raw materials, equipment and components for five years following the commencement of operation if the investment projects are carried out in the regions where investment was especially encouraged.
- **VAT exemption**: There are 25 types of goods and services which are exempted from VAT (certain agricultural products; financial derivatives and credit services; certain insurance services; medical services; teaching and training; printing and publishing of newspapers, magazines, and certain types of books, etc.).
    - Reduced VAT rate: 5 % VAT rate applied for essential goods and services (such as water, fertilizer, medicine, educational equipment, etc)

Impacts of the Incentives (benefits to businesses and the economy):

- **Tax incentives** (alongside many other economic measures) have **contributed in drawing in external and internal resources, boosting export and rapid economic growth** over the past three decades.
- Total investment capital was kept at the average level of more than 30% of GDP in 2011-2015.
- The share of private investment out of total investment rose from 23% in 2000 to more than 43% in 2015.
- The FDI sector constituted 23% of the country's investment capital in 2015. Share of output from FDI sector in total nominal GDP rose from 7.4% in 1996 to 18% in 2015 (GSO, 2016). Tax exemption and reduction for export activities helped to drive up export turnover through years, especially from the FDI sector.
- Several big FDI projects, usually provided by the government with a high level of tax incentives, such as **Samsung's Bac Ninh and Thai Nguyen projects**, have made significant contributions to Vietnam's exports in recent years. For example, in 2015, total exports from Samsung projects in Vietnam increased to over USD 30 billion, representing 20 % of total exports from Vietnam. Furthermore, with strong FDI sector participation in export activities, exports from higher value-added products have expanded more rapidly - when compared to the growth in traditional exports groups.
- Increasing the size of the FDI sector (as a share of GDP) has helped to shift the economy's structure towards a more industrial leaning. The industry and service sector grew at an average rate of 6.9% and 6.3% respectively in 2011-2015 period. The

agricultural sector's share fell from 24.53% in 2000 to 16.08% in 2005. Conversely, the industrial sector's share of GDP rose from 36.73% to 39.82%.

Overall effect on tax revenue:

- In 2013, the Vietnamese government projected that the revenue cost of applying CIT incentives to business expansion projects measures proposed under the CIT Law on Amendment and Supplements (2003) amounted to about VND 2.080 billion or about 1.6 percent of CIT (non-oil) revenue at that time. Likewise, in 2014, the revenue cost of introducing new CIT and PIT incentives under the Multiple Tax Law Amendments and Supplements Act amounted to about VND 2,500 billion or equivalent to 1,85% of CIT (non-oil) revenue in 2014.

3.3 China

3.3.1 China: Evidence from tax incentives in Special Econ. Zones

Cheng (2015) examined the impact of special incentive policy (tax incentives and others) in Chinese Special Economic Zones (SEZ). The paper studied the local and aggregate impacts of China's SEZ program.

Brief Study details:

- **Tax regime with incentive**: tax incentives for Special Economic Zones
- **Areas of Impact (outcome)**: Local GDP
- **Time period analysed**: 1993- 2006
- **Type of analysis:** Empirical; Event study with 2,280 county level observations

Tax regime/Incentive:

- The typical bundle of zone policy provided were lower tax rates and subsidized inputs for manufacturing firms, and rise in the infrastructure related investment in the region that hosts the Economic zone.
- The notable tax incentive policies implemented in these early zones were a 33 to 15 percentage reduction in the rate of corporate income tax, the ability to lease land at a discounted price, lower hiring costs, and sometimes cheaper access to capital.
- This program provided foreign investment firms with a substantial tax break and access to cheap land in exchange for locating within a county in a designated area. The zones created during this period were almost entirely sponsored by provincial governments. They also promised to invest in improving infrastructure and public utilities in order to provide a productive business environment for zone firms.
- Thus, early Chinese SEZs obtained special treatment not just in the form of tax breaks and investments, but also in the form of free market institutions.

Impacts of the Incentives (benefits to businesses and the economy):

- The study showed that the **SEZs raised national GDP by 1% to 2% per year,** over 5 years.
- SEZs generated a **6% to 10% gain in GDP of the hosting county** (i.e. Chinese provinces with the SEZs) 5 years after the creation of the zones. The increase in GDP manifests steadily after the second year of SEZ establishment.
- SEZs brought forth a **6% higher manufacturing employment** in a post-SEZ year relative to a pre-SEZ year.
- SEZs led to more manufacturing firms in the county.
- the economy-wide effect of an SEZ depended on the elasticities of inter-regional and inter-sectoral labour supply, in addition to the relative productivity levels of the SEZ-hosting regions and other regions.
- There was no significant evidence that the SEZ program caused inter-regional labour reallocation. Nevertheless, the program did accelerate the shift of employment out of the agricultural sector to the industrial sector.

Overall effect on tax revenue:

- In addition to the SEZs' effect on local/county output, the **program increased county government revenue collection to a large degree – 20% to 26%,** 5 years after the establishment of the zones. This effect is not surprising, considering that the zones attracted new business establishments, and that **business tax income made up a large share of the county government's budgetary revenue**.

3.3.2 China: Evidence from tax incentives for R&D

Jia and ma (2017) studied the effects of tax incentives on firm R&D expenditures and analysed how institutional conditions shape these effects.

Brief Study details:

- **Tax regime with incentive**: Tax incentives for R&D (user cost)
- **Areas of Impact (outcome)**: R&D expenditures
- **Time period analysed**: 2007- 2013
- **Type of analysis:** Empirical; Price elasticity model Firm-level panel data

Tax regime/Incentive:

- In China, there is a growing use of tax incentive policy to promote firm R&D. According to the OECD (2008), **China is among** the eight **countries with the most generous R&D tax treatments** in the world (i.e. besides Spain, Mexico, France, Portugal, the Czech Republic, India, and Brazil).
- **Current Chinese tax policies do not provide R&D related tax credits** (i.e., for directly reducing the amount of taxes owed based on R&D expenses). **Instead, China offers two primary tax incentives** – namely, the super deduction of R&D expenditures and preferential tax rates for New/High Technology Enterprises (NHTEs).

- The **NHTE program** extends the qualifying company a 15% tax rate (as opposed to the standard 25% tax rate). To qualify for NHTE status, a company must fulfil the following main requirements:
    i. Get a proprietary intellectual property rights over the core technology of its main product via self-R&D, transfer/purchase, donation, merger and acquisition, exclusive license, and so on;
    ii. conduct business in a designated high- and new-technology sector, and earn more than 60% of its total revenue from high- and new-technology products and services;
    iii. engage 10% of its employees in R&D work, with 30% or more of its workers having at least a college degree; and
    iv. invest 3% to 6% of its total revenue in R&D activities.

Impacts of the Incentives (benefits to businesses and the economy):

- Since the 1980s, China has seen innovation as one of its top priorities, and its R&D intensity (R&D expenditure as a percentage of GDP) has risen almost fourfold from 0.57% in 1995 to 2.01% in 2013.
- tax incentives were found to have a statistically significant effects on stimulating firm R&D expenditures. A **10% reduction in R&D user costs led firms to enhance R&D expenditures by 3.97% in the short run.** However, the short-run elasticity of R&D on user cost is smaller than most recent studies on developed countries. It is possible that institutions and tax incentives are complements in promoting R&D. Therefore, poor institutions weaken the effectiveness of tax incentives.
- User cost reduction via tax incentives has **negligible effects on State Owned Enterprises' (SOEs') R&D expenditures**. SOEs are not sensitive to R&D user costs since they bear many political responsibilities (i.e. beyond profit maximization) and face soft budget constraints. Conversely, a **10% reduction in R&D user costs leads private firms to raise their R&D expenditures by 4.63% in the short run.**
- For private firms, the study further noted that political connections play a key role in determining the effectiveness of R&D tax incentives.[3]
- In contrast to politically nonconnected private firms, **politically connected ones do not considerably increase R&D expenditures** as a result of a reduction in R&D user costs.
- The study argued that **politically connected firms have easier access to external finance and other beneficial treatments** and are thus **less sensitive to the increase in internal funds caused by R&D tax incentives**. Furthermore, politically connected firms are more likely to follow short-term rent seeking behaviour and thus be unenthusiastic to invest in high-risk and long-term R&D activities.

Overall effect on tax revenue:

- No explicit note or assessment on implications of revenue loss/cost to the government.

[3] The study defines political connections as when either one of the firm's board chairmen or its chief executive officer (CEO) is a former government official or a deputy of either the People's Congress (PC) or the People's Political Consultative Conference (PPCC).

3.4 Taiwan, ROC

Yang, Huang and Hou (2012) studied the effect of tax incentives on R&D activities in Taiwanese manufacturing firms.

Brief Study details:

- **Tax regime with incentive**: Tax incentives for R&D
- **Areas of Impact (outcome)**: R&D expenditures
- **Time period analysed**: 2000- 2005
- **Type of analysis:** Empirical; Propensity Score Matching, Panel IV, Generalised Method of Moments, Firm-level panel data

Tax regime/Incentive:

- The government of **Taiwan has put several measures in place to promote innovative activity in firms and to build their technological capability**, over the past three decades.
- The main policy in this regard is the **Statute for Upgrading Industries (SUI)**.[4] The policy was put into practice on January 1, 1991 (as a 20-year **tax incentive scheme**) to **promote industrial R&D, technological upgrading**, and development.
- The SUI policy applies to all manufacturing firms and delivers three types of functional incentives – specifically; **accelerated depreciation, tax credits, and tax-exemptions**. This policy aims to enhance firm performance and industrial development.
- The SUI is composed of seven chapters and 72 articles. There are many articles relating to tax incentives, for instance:
    - accelerated depreciation (Article 5),
    - investment tax credits for R&D, personnel training, automation and pollution control (Article 6),
    - investment tax credits for newly emerging industries, important and strategic industry shareholders (Article 8), and
    - five-year tax holidays or shareholder investment tax credits for newly-emerging, important, and strategic industries (Article 9).
- Article 6 encompasses the long-standing instrument, R&D tax credit, to encourage firms to carry out R&D activities. Under Article 6 regulations in the SUI, a firm may credit 35% of R&D expenditures and R&D personnel training against the amount of profit-seeking enterprise income tax payable within the coming five years.
- Although **R&D tax credits can be used within five years**, most Taiwanese firms **prefer to utilize the tax credits within two to three years**, since **R&D behaviour is generally highly persistent in Taiwan** (Huang and Yang, 2010). This implies that the accumulated tax credits may increase quickly.

[4] The Statute for Upgrading Industries (SUI) that applies tax incentives, subsidies, and supporting measures to support innovative activity is one of Taiwan's main industrial technology policies (Lien et al., 2007).

- If R&D expenditure of a firm is more than the average R&D expenditure of the previous two years, 50% of the excess amount of R&D expenditure can be credited against the amount of profit-seeking enterprise income tax payable.

Impacts of the Incentives (benefits to businesses and the economy):

- R&D **tax credit recipients appear to have 53.80% higher R&D spending** on average than they do without tax credits.
- R&D tax credits have had a significantly positive impact on R&D spending and growth, **particularly for electronics companies**. The marginal effect ranges from 0.094 to 0.120 and is moderate. Particularly, the **R&D elasticity of tax credits tends to gradually increase** along with the approaching expiry of the measure of R&D tax credits, giving a supportive view of its effectiveness.
- The value of **R&D expenditure rose steadily from NT$112,997 billion in 1992 to NT$251,579 billion in 2005**. The amount of **R&D tax credits rose by nearly nine times, from NT$1,810 billion in 1992 to NT$15,772 billion in 2005**. Taiwan's average **economic growth rate was 5.19 % during the 1992–2005 period.**
- Taiwan has attained significant technological development over the last two decades, and its excellent innovation performance makes it an outstanding case for investigating the issue of tax incentives.

Overall effect on tax revenue:

- From the point of view of public finance, **the depletion of the tax base attributed to R&D incentives may be one of the causes of Taiwan's fiscal shortfall**. Whether or not scarce government resources should be used to promote R&D depends on the efficacy of these measures in realizing greater R&D and contribute to sustainable growth.
- Taiwan has serious fiscal difficulties - including pressure from tax shortages. Article 6 of the SUI makes up for **roughly one third of the total annual tax revenue shortfall (of NT$100 billion)** faced by the Taiwan Government (Lien et al. 2007).

4. Challenges of investigating tax incentives

Revealing the causal impact of tax incentives on investment, output, employment and innovation is **difficult**. Other than having good data with investment information (e.g. on firm-level), **empirical studies** need to be **careful** while:

- identifying and modelling what the circumstances/performance in the absence of incentives would have been by utilizing a **good counterfactual**; and
- including in the **model the behaviour of non-benefitting firms that may be indirectly affected** by operating in the same market as firms benefiting from tax incentives. (IFS, 2018)

A **major limitation/difficulty of empirical evaluation** of the impact of tax incentives is the hurdle of finding a valid **counterfactual**. Knowing what would have been the outcomes (e.g. the level of investment) with or without a particular tax incentive regime is complicated (IFS, 2018).

There is also plenty of **descriptive evidence on tax incentives and their potential effect**. For instance, evidence from investor surveys may provide descriptive evidence of the relative merits of incentives as viewed by **investors** Nevertheless, these views **are likely to be biased**, as investors are expected to respond in a way that maintains tax incentives, even if they do not generate additional investments or jobs (IFS, 2018).

Furthermore, **Moore (2015) warns that the technical challenges involved in defining and measuring exemptions are not the only issue**. An important challenge, he argues, is the **secrecy that surrounds the introduction of tax exemptions/incentives**. Tax exemptions (especially in developing countries) are usually given more by politicians than by public servants (i.e. tax administrators), and often in a variety of ill-defined and non-transparent circumstances.

5. References

Abbas, S. A., and Klemm, A. (2013), 'A partial race to the bottom: corporate tax developments in emerging and developing economies', International Tax and Public Finance, vol. 20, pp. 596-617. https://doi.org/10.1007/s10797-013-9286-8

CARI (2019) Tax expenditure and the treatment of tax incentives for investment. Trade, Investment and Tax Cooperation. Consejo Argentino para las Relaciones Internacionales. https://t20argentina.org/wp-content/uploads/2018/06/TF7-7-4-Tax_expenditure_Policy-Brief-DEF.pdf

Chaurey (2016) Location-based tax incentives: Evidence from India. Journal of Public Economics 156 (2017) 101–120. https://doi.org/10.1016/j.jpubeco.2016.08.013

Cheng, Y. (2015), 'Place-based policies in a development context - evidence from China'. Working Paper, UC Berkeley.
http://refhub.elsevier.com/S0047-2727(16)30113-X/rf0050

Crespi, G., Giuliodori, D., Giuliodori, R. and Rodriguez, A. (2016), 'The effectiveness of tax incentives for R&D+i in developing countries: The case of Argentina', Research Policy, vol. 45, no. 10, pp.2023-2035. https://doi.org/10.1016/j.respol.2016.07.006

Ghazanchyan, M., Klemm, A. and Zhou, Y. (2018) Tax Incentives in Cambodia. IMF Working Paper No. WP/18/71. https://www.imf.org/~/media/Files/Publications/WP/2018/wp1871.ashx

Gupta, S. (2018) Time to Pay More Attention to Tax Expenditures? Center for Global Development. https://www.cgdev.org/blog/time-pay-more-attention-tax-expenditures

IFS (2018) Review of Corporate Tax Incentives for Investment in Low- and Middle-Income Countries. Institute for Fiscal Studies, UK. https://www.ifs.org.uk/uploads/R142.pdf

IMF, WB, UN and OECD (2015) Options for Low Income Countries' Effective and Efficient Use of Tax Incentives for Investment. A background paper to the report prepared for the G-20 development working group by the IMF, OECD, UN and World Bank.
https://www.imf.org/external/np/g20/pdf/101515a.pdf

James, S. (2009). Incentives and Investment: Evidence and Policy Implications. Investment Climate Advisory Services Paper, World Bank Group, Washington DC.
http://documents.worldbank.org/curated/en/945061468326374478/pdf/588160WP0Incen10BOX353820B01PUBLIC1.pdf

James, S. (2013). Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2401905

Jia, J., and Ma, G. (2017). Do R & D tax incentives work? Firm-level evidence from China. China Economic Review, vol. 46, pp. 50-66. https://doi.org/10.1016/j.chieco.2017.08.012

Keen, M. (2015). Tax incentives. Proceedings of the Sixth IMF-Japan High Level Tax Conference for Asian Countries, IMF and Government of Japan, Tokyo.
https://www.imf.org/external/np/seminars/eng/2015/asiatax/pdf/keen1.pdf

Klemm, A., and Van Parys, S. (2012), 'Empirical evidence on the effects of tax incentives', International Tax and Public Finance, vol. 19, pp. 393-423.

Ministry of Finance, Government of India (2018) Statement of Revenue Impact of Tax Incentives

under the Central Tax System: Financial Years 2016-17 and 2017-18. https://www.indiabudget.gov.in/budget2018-2019/ub2018-19/rec/annex7.pdf

Moore, M. (2015) Tax and the Governance Dividend. ICTD Working Paper 37. International Centre for Tax and Development, UK. https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/11197/ICTD_WP37_0.pdf

OECD (2008). OECD science, technology and industry outlook 2008. Technical report. Organisation of Economic Co-operation and Development. https://www.oecd.org/sti/inno/oecdsciencetechnologyandindustryoutlook2008.htm

Oxfam and UN Women (2016). Assessing Vietnam's Tax Incentive Policies. Research Report. https://cng-cdn.oxfam.org/vietnam.oxfam.org/s3fs-public/file_attachments/Oxfam%20Tax%20incentive%20report%20ENG.pdf

Stausholm, S. N. (2017). Rise of ineffective incentives: New empirical evidence on tax holidays in developing countries. https://doi.org/10.31235/osf.io/4sn3k

Tyson, S (2014). Reforming tax expenditures in Italia: What, why, and how? IMF Working Paper W/14/7, IMF, Washington DC.

Van Parys, S. & S. James (2010). The Effectiveness of Tax Incentives in Attracting FDI: Evidence from the Tourism Sector in the Caribbean. Working Papers of Faculty of Economics and Business Administration, Ghent University, Belgium 10/675, Ghent University, Faculty of Economics and Business Administration. http://wps-feb.ugent.be/Papers/wp_10_675.pdf

Wells, L. T., and Allen, N. (2001), 'Tax holidays to attract foreign direct investment: lessons from two experiments'. In Wells, L.T., Allen, N.J., Morisset, J., and Prinia N. (Eds.), Using tax incentives to compete for foreign investment - are they worth the costs? Foreign Investment Advisory Service, Occasional Paper 15. http://documents.worldbank.org/curated/en/164401468770722428/pdf/multi0page.pdf

Wiedemann, V. and Finke, K. (2015). Taxing Investments in the Asia-Pacific Region: The Importance of Cross-Border Taxation and Tax Incentives. ZEW Discussion Papers, No. 15-014. http://ftp.zew.de/pub/zew-docs/dp/dp15014.pdf

World Bank (2014). Restructuring corporate income tax and value added tax in Vietnam: An analysis of current changes and agenda for the future, Report No: AUS1671, World Bank, Washington DC. https://openknowledge.worldbank.org/bitstream/handle/10986/17832/AUS16710WP0P1400cover0report0number.pdf?sequence=1

World Bank (2015). Staying the Course. World Bank East Asia and Pacific Economic Update. http://documents.worldbank.org/curated/en/303611468188349154/pdf/100599- PUB-P155886-PUBLIC-Box393236B-EAP-Economic-Update-2015-10.pdf

Yang, C-H, Huang, C-H, and Hou, T. C-T, (2012), 'Tax incentives and R&D activity: Firm-level evidence from Taiwan', Research Policy, vol. 41, no. 9, pp.1578-1588. https://doi.org/10.1016/j.respol.2012.04.006

Annex 1: Different types of tax incentive regimes (advantages & disadvantages)

Tax incentives may have many arrangements such as: reduced tax rates; tax holidays; investment allowances; tax credits; partial or full exemption from import tax or indirect taxes; accelerated depreciation; incentives provided under special zones, such as economic zones and export processing zones (see Table 1 below).

There are certain **circumstances under which the use of tax incentives could be economically justified**. These include incentives for projects that are expected to deliver **significant positive externalities to the rest of the economy**, such as high-tech investment, research and development (R&D). However, potential costs associated with the use of such incentives (see Table 1 below) should also be considered when accessing these benefits.[5] (IFS, 2018; James, 2013; Oxfam and UN, 2016; IMF et al., 2015)

See: Table 1: Advantages and disadvantages of different types of tax incentives, Source: Boonnyarat (2014) as cited in Oxfam and UNWomen (2016: 11), https://vietnam.oxfam.org/sites/vietnam.oxfam.org/files/file_attachments/Oxfam%20Tax%20incentive%20report%20ENG.pdf

Annex 2: Prevalence of tax incentives in Asia

As with many other regions around the world, **East Asian countries have a long history in the implementation of tax incentives**. Various forms of tax incentive were set up to enhance exports, private saving and investment, and technological development in these countries (James, 2013; Oxfam and UN, 2016).

- Forms of **incentives** employed in these countries **include investment allowances, tax holidays, reduced tax rates, accelerated depreciation or import tax exemption**.
- Among these different forms of tax incentives, **tax holidays** were reported to be **very popular** in many Asian countries, such as **Singapore, Philippines, Thailand** and **Indonesia**. Likewise, partial or full import tax exemptions are also common in Association of Southeast Asian Nations (ASEAN) (James, 2013).

According to James (2013), 11 out of 12 surveyed countries in the **East Asia and Pacific region (i.e. 92%) have adopted tax holidays or exemptions; 92% of countries have adopted reduced Corporate income tax (CIT) rates and 75% of countries have adopted investment allowances.**

- Developed countries have shifted away from the use of tax holidays over time due to their inefficiency in attracting investment (World Bank, 2014). Developed countries tend to rely more on investment allowances and tax credits (James, 2013).

[5] These costs include losses in the collection of revenue, distortions in the allocation of resources and additional complexity in the tax system.

Recently, the **focus of tax incentives in many East Asia has shifted to the promotion of technological innovation.** According to James (2013):

- **75%** of the12 countries surveyed in **East Asia and the Pacific** region offered tax incentives for research and development (R&D)**.**
- The granting of tax incentives to promote technological innovation is intended to generate positive externalities (i.e. spillover effects) for the Asian economies and contribute to the strengthening of their global competitiveness.

Keen (2015) notes the **steady phasing-out of tax incentives** by a growing list of countries to shift tax policy to **tax equity and neutrality**. For instance, **China took some significant steps in the late 2000s to simplify its tax incentive system.**

- The government of China harmonized the CIT rates between domestic and foreign companies in 2008. For foreign investment firms (with tax holidays of between 3 and 10 years and reduced CIT rates of 24%, 15% or 10%), China has been providing very high tax incentives in the past. (Oxfam and UN, 2016)
- Most tax incentives for foreign investment undertakings, including tax holidays, were abolished as from 1 January 2008. China also eliminated the reduced rates of 24% and 10%. (Oxfam and UN, 2016).

Annex 3: Tax Expenditure Report

See: Table 3: Revenue impact of major tax incentives for corporate taxpayers in India (for financial years 2016-17 and 2017-18, in Rs.), Source: Ministry of Finance, Government of India (2018: 32-34)

Acknowledgements

We thank the following experts who voluntarily provided suggestions for relevant literature or other advice to the author to support the preparation of this report. The content of the report does not necessarily reflect the opinions of any of the experts consulted.

- Mick Moore, International Centre for Tax and Development
- Rhiannon McCluskey, International Centre for Tax and Development
- Evert-jan Quak, Institute of Development Studies

Suggested citation

Megersa, K. (2019). Review of tax incentives and their impacts in Asia. K4D Helpdesk Report. Brighton, UK: Institute of Development Studies.

About this report

This report is based on six days of desk-based research. The K4D research helpdesk provides rapid syntheses of a selection of recent relevant literature and international expert thinking in response to specific questions relating to international development. For any enquiries, contact helpdesk@k4d.info.

K4D services are provided by a consortium of leading organisations working in international development, led by the Institute of Development Studies (IDS), with Education Development Trust, Itad, University of Leeds Nuffield Centre for International Health and Development, Liverpool School of Tropical Medicine (LSTM), University of Birmingham International Development Department (IDD) and the University of Manchester Humanitarian and Conflict Response Institute (HCRI).