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Review Article

The Influence of Iron Ore Tax on China's Metallurgical Mines

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Abstract: Mining industry is a very important industry in China. Its tax and fee policy is related to the whole industry. This paper summarizes the main types of taxes and fees involved in iron ore in China, Australia, Russia, Cameroon, Brazil, India and South Africa, and also compare the comprehensive tax and fee burden rates of iron ore companies in China with those of four major international mining companies, Rio Tinto, BHP Billiton, Valley and FMG. It concludes that the comprehensive tax and fee burden rates of iron ore companies in China are higher about 6% than those of the four major international mining companies. The main reasons for the increase are unreasonable industrial orientation of mining industry, high resource tax and value-added tax rates, few deductible items of value-added tax, and unreasonable collection of local special taxes and fees. Finally the author puts forward five suggestions on how to reduce the tax burden of iron ore companies. First, the government can improve the tax system and form a scientific, reasonable tax system. The second is adjusting the mining industry from the second industry to the primary industry. The third is to formulate a national strategy to ensure the safety of iron ore supply. The fourth is to uniformly determine the collection standard of resource tax rate by the country, cancel the unreasonable tax and fee collected by local government. The fifth is to increase fuel tax credits for mining companies.

Keywords: Iron Ore, Taxes and Fees, Industry Orientation, Suggestion

1. Introduction

Mineral resources are the material basis for developing the national economy and ensuring national security. Mining industry is an important basic industry in the development of national economy. It is directly engaged in the development and utilization of mineral resources. The development of mining industry plays an important role in the development of national economy. Since 2014, influenced by various factors at home and abroad, the growth rate of global iron ore demand has slowed down, production capacity has been released rapidly, and prices have been declining all the way. By the end of 2015, iron ore prices have fallen below $40 per ton, a record low. At the same time, most of the iron ore companies in China suffer serious operating losses due to poor resource endowment, high cost of development and utilization, low degree of intensive utilization and single means of competition, and they have to cut production, suspend production, or even close down. The sustainable development of the iron ore industry is facing severe challenges. At this time, the problem of excessive tax burden of iron ore companies is more obvious, and the miners appeal to the government to reduce the tax burden on iron ore companies.

2. Taxation of Metallurgical Mines in China

According to relevant data, iron ore companies in China have to pay an average of 25 kinds of taxes and fees. In addition to the taxes and fees stipulated by the country, some local government also impose local fees. The statistics showed that the average burden rate of sales tax and fee of domestic key metallurgical mining companies was 22.51% [1] from 2011 to 2013. And some companies even exceeded 25% [2].

2.1. Resource Tax

In October 1984, the resources tax was first established as an independent tax category in China, and only three kinds of non-metallic minerals were collected, such as crude oil, natural gas and coal.

On January 1, 1992, iron ore was levied within the scope of resource tax. It was levied in the form of "quota from quantity", with the tax rate ranging from CN¥2 to CN¥30 per ton. At the same time, the government decided to adopt temporary tax reduction measures, stipulated that the combined metallurgical companies should temporarily reduce by 25% of the specified tax amount, and the independent mines should temporarily reduce by 50% of the specified tax amount. and on August 1, 1992, resource tax is levied according to the specified tax standard.

Since then, the country has repeatedly adjusted the proportion of iron ore resource tax. On January 1, 1994, iron ore resources tax was levied at 60% of the prescribed tax amount standard. On April 1, 2002, iron ore resources tax was levied at 40% of the prescribed tax amount standard. On January 1, 2006, iron ore resources tax was levied at 60% of the prescribed tax amount standard. On February 1, 2012, the iron ore resource tax was levied at 80% of the prescribed tax amount. On May 1, 2015, the iron ore resource tax was levied at 40% of the prescribed tax amount. In 2016, the government reformed the resource tax again, and since July 1, the iron ore resource tax base is adjusted to concentrate sales revenue from raw ore volume, and the tax rate is 1% ~ 6%.

2.2. The VAT

In 1979, China successively carried out value-added tax (VAT) trials in Shanghai, Liuzhou, Changsha and other places.

In 1984, the state council promulgated the regulations of the PRC on VAT, marking that VAT has become a new tax in China. Since then, VAT has undergone many reforms and adjustments. On January 1, 1994, China implements product value added tax comprehensively. From May 1 2016, the pilot project of replacing business tax with value-added tax has been carried out in China.

The VAT belongs to turnover tax. For iron mining enterprise, the capital construction period is relatively long, a large number of equipment needs to be purchased, and it also has no sales revenue, these result that a large number of input taxes can't be deducted in the construction period. While the enterprise enters the production period, only a small amount of input tax can be deducted. At the same time, the payment of mineral rights, project construction costs and resource taxes paid by iron mining companies cannot be used for VAT deduction. Therefore, compared with general manufacturing companies, mining companies' VAT burden is higher.

2.3. The Charge for Mining Right and the Purchase Price of Mining Right

According to The Management Regulations of Mining Registration of Mineral Resources promulgated by the State Council in 2006, the State implements the system of paid acquisition of mining rights. The royalty rate is paid annually according to the mining area. The standard is ¥1000 per square kilometre per year. At the same time, if an application for the mining right that was explored by the state and the mineral resource has been proved, the applicant for the mining right shall pay not only the charges for the use of the mining right as stipulated, but also the royalties for the mining right formed by the state funding the mineral exploration as assessed. The price of mining right may be paid in one time or in stages, but the maximum period of payment shall not exceed 6 years.

2.4. Fuel Consumption Tax

On January 1 2009, the country implemented the reform of refined fuel prices and taxes, abolished six charges, including road maintenance fees, waterway maintenance fees and road transport management fees, and raised the consumption tax on refined fuel products.

Before the tax reform, the mine built and maintained the road by itself. The large-scale diesel vehicles and construction machinery ran in the mine area, without license, and the enterprise was exempted from paying the road maintenance fee, the road transport management fees etc. After the reform, mining companies should not only continue to bear the cost of road construction and maintenance, but also pay in-price consumption tax on fuel. In addition, for diesel oil used in explosive production, also needed to paid the consumption tax after the reform. As the automobiles and loaders used in metallurgical mines are large-scale equipments that consume diesel oil, the reform has actually increased the production cost of iron ore companies [3].

2.5. The Local Special Taxes and Fees

2.5.1. Ore Departure Fee

In a county in southern Hebei Province, in order to develop local economy, the local government required iron mining companies to build concentrators and deep processing of iron ore products, imposing a departure fee of ¥20~30 per ton on iron raw ore which to be sold to other counties.

2.5.2. Compensation for Disturbing the Residents

In a certain area of Weifang city, Shandong Province, a compensation fee of ¥1000 for one person every year is charged to iron mining companies according to the number of residents living in the area, which are disturbed by the noise generated by mining blasting, crushing and grinding in iron mining companies.

At present, iron mining companies in China involve various tax categories and rates as shown in table 1.

Table 1. *List of taxes and fees for iron mining companies in China.*

Tax item	Tax rate or charge standard	Remark
Resource tax	1%~6%	
VAT	13%	
Business income tax	25%	
Building tax	Real estate value×70%×1.2%	
Land use tax	The charging standard is different in different area	Quarterly payment
Stamp duty	Charged at a certain rate depend on the type and amount of the contract	
Urban maintenance and construction tax	5%~7%	Tax base is VAT
Vehicle and vessel use tax	According to the type and size of the vehicle	
Educational Surtax	3%	Tax base is VAT
Farmland occupation tax	The charging standard is different in different region	Paid at one time
Oil consumption tax	Petrol CN¥1.52 per liter, diesel CN¥1.2 per liter	
Personal income tax	A progressive tax rate	
Contract tax	3%~5%	
Local educational Surtax	2%	Tax base is VAT
Employment guarantee for the disabled	The charging standard is different in different province	
Water resource fee	The charging standard is different in different region	
Charge of water and soil conservation	The charging standard is different in different region	
Land compensation fee	The charging standard is different in different region	
Pollutant charge	The charging standard is different in different region	
Drainage facilities fee	The charging standard is different in different region	
Civil air defense fee	The charging standard is different in different region	
Dredging fee	The charging standard is different in different region	
River occupation fee	The charging standard is different in different region	
Forest vegetation recovery fee	The charging standard is different in different region	
Safety relief fee	The charging standard is different in different region	
Compensation fee for agricultural irrigation	The charging standard is different in different region	
Highway construction fund	The charging standard is different in different region	
Electric power construction fund	The charging standard is different in different region	
Local water conservancy fund	The charging standard is different in different region	
Mining geological environment treatment deposit	The charging standard is different in different region	
Cultural relics protection fee	The charging standard is different in different region	
Ore departure fee	¥20~¥30 per ton, iron ore raw ore	
Compensation for disturbing the residents	One person¥1000 per year	

3. Tax Situation in Some Other Countries

3.1. Australia

Australia is a tax-sharing country, which is divided into federal tax and State (Territory) government tax. Among them, federal taxes mainly include corporate income tax, Goods and Services Tax (GST), fuel consumption tax, withholding tax, etc. And state (Territory) government taxes include Payroll Tax, Stamp Duty, Land Tax and Royalty [4, 5].

3.1.1. Corporate Income Tax

Broadly, Australian resident corporations are subject to income tax on their worldwide income at a flat rate of 30% whilst non-resident corporations are taxed on their Australian sourced income at a rate of 30%. This rate applies to income from Australian mining activities. And there is no tax exemption threshold.

3.1.2. Goods and Services Tax (GST)

A broad based goods and services tax (GST) at a rate of 10% applies on most goods, services and other items sold or consumed in Australia. The GST is a multi-staged value-added tax that applies on each supply. There are GST-free rates for qualifying exported products and services and other transactions.

Both Australian resident and non-resident entities engaged in mining and metals industries will be subject to the GST on goods and services supplied to them. On the output side, supplies by mining companies of minerals' output can be classified as GST-free (as exports or by the nature of the metal).Almost all commercial transactions have a GST impact.

The GST registration threshold is AUD75, 000 each year.

3.1.3. Fuel Consumption Tax and Fuel Tax Credits

The fuel consumed by the mining industry needs to pay consumption tax. Different fuels, different tax rates, and the highest are up to AUD38.143 cents per liter. Businesses can claim fuel tax credits for diesel and fuel oil (but not petrol) used in vehicles and equipment to conduct eligible mining activities. For example, diesel oil consumed by the mining industry can be deducted by AUD32.143 cents per liter, and the actual fuel consumption tax rate is 6 cents per liter [6].

3.1.4. Withholding Taxes

Interest, dividends and royalties paid to non-residents are subject to a final Australian withholding tax of 10% for interest, or up to 30% for royalties and dividends.

3.1.5. Payroll Tax

The tax rates vary from state to state, ranging from 5% to 7%. According to the payroll tax rules, employers pay payroll tax when their annual wage income exceeds the minimum threshold. The states have different requirements for the minimum threshold.

3.1.6. Stamp Duty

Stamp duty is a State and Territory based tax which is generally imposed on specified transactions. Each State and Territory has its own respective stamp duty legislation.

State and Territory stamp duty legislation can differ in relation to the types of instruments or transactions on which duty is imposed, the rates of duty, the parties liable to pay duty and the timing for lodgment and payment of duty. The top marginal duty rates range from 4% to 6.75%.

Entities engaged in the mining and metals industry should be aware that the transfer of both mining and exploration tenements is subject to stamp duty in most jurisdictions, whilst the transfer of mining information is generally not subject to stamp duty.

3.1.7. Land Tax

In addition to the Northern Territory, all States need to levy land tax, and the rates are different to each other.

3.1.8. Royalty Regimes

Royalties are State and Territory based taxes, which are generally levied on production from mining operations. Each State and Territory has its own royalty regime, and the rates are also different, for example, royalties for iron ore in Western Australia is 7.5%, while in South Australia is 5%, and Queensland is 2.5% [7].

State and Territory legislation can differ in relation to the types of materials mines that are subject to royalties, the rates that at which royalties are levied, the value upon which royalties are levied and the timing for reporting and payment.

3.2. Russia

The tax and fee of Russian mining industry mainly include mineral extraction tax, corporate income tax, value-added tax, custom duty and exploration fees etc. The Tax Administration Department of Russian Federation Government is Federal Tax Service [8].

3.2.1. Mineral Extraction Tax

Mineral extraction tax is a major tax category in Russia. Its tax base is the value of mined minerals minus production costs, or the sales price after deducting VAT, customs duties and customs clearance fees. Mineral extraction tax shall be paid on a monthly basis, and the tax rate of non-ferrous metal is 8.0%, the gold is 6.0%, the precious metals (excluding gold) is 6.5%, the ferrous ores is 4.8%.

3.2.2. Corporate Income Tax

The maximum tax rate is 20%, including 2% paid to the federal government and 18% paid to local governments. Corporate income tax base is total revenue, which includes sales revenue and non-sales revenue, deducted related expenditures and subsidies. For mining companies, the costs related to mineral exploration, mining right application, land acquisition for mine construction, well construction and environmental governance can be directly amortized over a certain period of time.

3.2.3. The VAT

There were three main VAT rates 0%, 10% and 18%, which depend on the nature of supply. The rate for mineral products is 18%, and since April 1, 2019, the rate had fallen to 13%.

3.2.4. The Cost of Geological Exploration

For solid mineral exploration licenses, there are different payment requirements according to the area and the mineral type. The calculation of the payment amount is determined by the Russian National Mineral Resources Fund, according to the area. At the same time, Russia's mineral resources law also stipulates the minimum and maximum proportion that should be paid regularly.

3.2.5. Custom Duty

Russia imposes tariffs on exports of mineral products, including oil and gas products. For solid minerals, the export tariff varies according to the type of mineral, and the tax rate is no more than 6.5%.

3.2.6. Property Tax

The movable and immovable property recorded in the taxpayer's balance sheet as property shall be subject to enterprise property tax, including the transfer of temporary possession, use, disposal and asset management, excepting land. The maximum tax rate is 2.2%. The specific tax rate is determined by the authority of each federal entity according to the type of business activities. If not, the maximum tax rate of 2.2% is applicable.

3.2.7. Land Tax

The land is divided into agricultural land from non-agricultural land according to the use of land, and the tax rate is range from 0.1% to 1.5%, which is determined by the local government.

3.3. Cameroon

The tax and fee of Cameroon's mining industry mainly include corporate income tax (CIT), special income tax (SIT), value-added tax (VAT), registration fee, business license tax, audio-visual license tax and mining tax.

3.3.1. Corporate Income Tax

The tax rate is 38.5%, and the tax base is the net profit of the company in the current year, but the total corporate income tax shall not be less than 1.1% of the total business in the current year.

According to the Cameroon's New Mining Law, net profit is the difference between net assets at the end of the year and at the beginning of the year, excluding additional capital injections from partners and dividends. Secondly, the total exploration investment of mining companies which is audited by state-recognized institution is frozen in a temporary account. These funds all can be amortized from the first year to gain profit, and deducted from taxable profits until all amortization is completed.

3.3.2. Special Income Tax

The special income tax refers to the payment of special tax on remuneration paid to natural persons or legal entities from other countries for services, which has a wide scope of application. The tax base consists of the total amount of invoices issued by foreign service providers and any other costs incurred by customers in Cameroon, such as accommodation, catering and other related expenses during their stay in Cameroon. The tax rate is 15%.

3.3.3. Value-Added Tax (VAT)

There are two tax rates 0 and19.25%, for local sales or services in Cameroon is 19.25%, while for the export of taxable goods is zero. The tax base is the currency in which goods or services are paid. Before production, mining companies may apply for a refund of VAT paid on imported goods and equipment purchased for production, but this requires a strict and complicated VAT refund procedure.

3.3.4. Stamp Duty

Stamp duty is paid on a proportional or fixed basis. And the specific tax rate is determined by the tax authorities.

3.3.5. Business License Tax and Audio-Visual License Tax

The business license tax is paid on an annual basis, with the estimated annual turnover as the tax base. New registered companies may apply for exemption from business license tax for the first two years. Audio-visual license tax shall be levied annually on the basis of business license tax.

3.3.6. Mining Tax

In March 2002, Cameroon promulgated the Mining Law Implementation Rules Act, which stipulates that mining companies should pay "ad valorem tax" at the mining stage. The tax rate of iron ore companies shall be paid at 2.5% of the tax value of iron ore.

3.3.7. Mining License Fees

The applicant should pay 5000000 XAF (Central African CFA franc) when the mining license is established, and 1000000 XAF for renewed, 250000 000 XAF for transferred.

3.3.8. Customs

Mining companies are exempt from customs on imported equipment, materials, goods and the first batch of spare parts with equipment during the construction period.

3.4. Brazil

Tax system in Brazil is divided into federal, state and city taxes. In addition, mining companies are required to pay compensation finance for exploring minerals.

3.4.1. Federal Tax

The main federal taxes are corporate income tax, net profit social contribution fee, income tax, industrial product tax and customs.

1) Corporate Income Tax

According to the tax regulations, the income tax rate for profits below 240,000 Reals is 15%, and the excess is 25%.

2) Industrial Product Tax

The tax rate of industrial products is generally between 0% and 35%. For the import industrial product, the tax base is CIF price, and for domestic sales, the tax base is the sales price of the products.

3) Net Profit Social Contribution Fee

Actually, it belongs to income tax, and the general enterprise tax rate is 9%. For financial institutions, the tax rate is 15% from 2019.

4) Income Tax

The income tax includes social integration fee and social insurance financing tax. These two kinds of tax fee are levied on corporate income. The cumulative tax rate is 0.65% and 3% respectively, while the non-cumulative tax rate is 1.65% and 7.6%.

5) Customs

Export customs for iron ore in Brazil are 2%.

3.4.2. State Tax

The state tax is mainly the turnover tax. As long as commodities are circulated, it is necessary to levy the turnover tax. The tax rates of each state are different, and in most cases, the turnover tax rate in the state is 17%-19%, while the inter-state tax rate is generally 4%, 7% and 12%.

The tax base is usually the price of the product and some selling expenses. In the import sector, the base is the sum of CIF, custom, industrial product tax, income tax and some customs clearance expenses.

3.4.3. City Tax

City tax is mainly the commodity circulation service tax, which is levied on companies providing services. The tax rate is between 2% and 5%, and the tax base is the service price.

3.4.4. Compensation Finance for Exploring Minerals (CFEM)

According to Brazilian federal and local laws and regulations, mining companies are required to pay compensation finance for exploring minerals (CFEM).

The CFEM rate is 0.2%-3% of net sales of mineral products. The rate of manganese ore, bauxite, rock salt and potassium ore is 3%. Iron ore and coal are 2%. Gold ore is 1%, and some precious metal ore are 0.2%, such as platinum. CFEM are divided between the central and local government. 65% of CFEM belong to local government, 23% belong to the state, and 12% belong to the general administration of minerals [9, 10].

On December 19, 2017, Brazil raised the iron ore CFEM rate to 3.5%, gold from 1% to 1.5%, niobium from 2% to 3%, and diamond from 0.2% to 2%.

3.5. India

The legislative and collection powers of taxation in India are mainly concentrated in the federal central government and state government. The local government is responsible for collecting a small amount of taxes [11]. The central government mainly collects income tax (except agricultural income tax, which is collected by the state government), custom, central consumption tax and service tax. The state government mainly collects VAT, stamp duty, state consumption tax, land income tax. The taxes levied by local government mainly include property tax, market tax, and use tax on water supply, drainage and other public facilities.

3.5.1. Tax on Corporate Income

According to India's Income Tax Law, local Indian companies are required to pay taxes on their income from all sources worldwide. Foreign companies are required to pay taxes on their business related to India or other income derived from India. The basic tax rate for domestic companies is 35%, with a surcharge of 2.5%. While the basic tax rate for foreign companies is 40%, with a surcharge of 2.5%. In addition, all companies must pay an education tax of 2% of the tax already levied. If the company's net assets exceed 1.5 million rupees, a 1% property tax is also required.

3.5.2. The Consumption Tax

According to the Central Consumption Tax Law of 1985, consumption tax should be paid for commodity production. The production refers to the development of a new title, characteristics, use and marketability of goods, including packaging and labels. The consumption tax rate for most products is 16%.

3.5.3. Customs Duty

Since December 30, 2011, India imposed a 30% customs duty on all exports of iron ore with grade over 58% [12].

3.5.4. Service Tax

India imposes a 10% service tax on taxable services provided by specific service providers in its territory, including 2% education tax.

3.5.5. Value-added Tax（VAT)

Value-added tax applies to all stages of sales, and the input value-added tax paid can be deducted. The VAT rate for iron ore products sales is 12.5% in the same state, while for cross-state sales, a 4% additional central consumption tax is needed.

3.5.6. The Royalty

On August 22, 2014, the Indian Parliament approved an adjustment to the mining tax, raising the iron ore mining tax from 10% to 15%.

3.6. South Africa

In South Africa, tax system is divided into three levels, including central, provincial and local government. Mining companies are mainly involved in corporate income tax, company secondary tax, value-added tax (VAT), equity tax, skill development fee, carbon emission tax, land mineral exploration fee, royalty and environmental deposit.

3.6.1. Corporate Income Tax

The comprehensive tax rate of corporate income is 33%, including 29% basic tax rate and 12.5% for the subsidiary tax of corporate dividend. For small companies with annual turnover less than 6 million rand, their corporate income tax is levied at progressive tax rate, taxable income less than 40,000 rand; the tax rate is zero; 10% tax rate for the part between 40,000 rand and 300,000 rand; 29% tax rate for the part above 300,000 rand. Branches or representative offices of foreign companies in South Africa are taxed at a 34% tax rate [13].

3.6.2. The VAT

All goods and services in South Africa are subject to VAT at a rate of 14%.

3.6.3. Equity Tax

South Africa requires companies to pay 170 rand tax when they are established. In addition, 5 rand tax shall be paid for each share capital approved for issuance by 1000 rand or part of less than 1000 rand. When issuing shares, a stamp duty of 5 cents shall be paid for every 20 rand issue price or less than 20 rand.

3.6.4. Skill Development Fee

Since April 1, 2000, companies that pay more than 500,000 rand a year are required to pay 1% of their total wages for skill development.

3.6.5. Carbon Emission Tax

South Africa has imposed a carbon tax on new cars and light commercial vehicles since September 1, 2010. When the carbon emission exceeds 120 grams per kilometer, a tax rate of 75 rand per gram is needed for the excess.

3.6.6. Special Tax for Mining Companies

1) Land Mineral Exploration Fees

From 1 May 2004, a unified pre-determined exploration rate was implemented for all exploration rights, including those on private land (Tables 2 and Table 3) [14].

2) Royalty

The royalty payable for existing mining rights is 1% of the total revenue.

3) Environmental Margin

South African Mining Law stipulates that the acquisition of mining rights shall submit corresponding environmental impact assessment, environmental management plan and mine closure plan (mining stage). And environment margin as financial proof of the implementation of the above plans is also required. The environment margin must be submitted before the approval of the environmental management plan or the environmental management project.

Table 2. *Charge standards for exploration right on land in South Africa.*

Exploration right year	Exploration right area between 0 and 1000 hm^2 (rand/a)	Exploration right area more than 1000 hm^2 (rand/ hm^2)
First year	110000	100
Second year	110000	150
Third year	120000	200
Fourth year	130000	250
Fifth year	140000	300

Table 3. *Charge standards for renewal of exploration right on land in South Africa.*

Exploration right year	Exploration right area range from 0 to 1000 hm^2 (rand/a)	Exploration right area more than 1000 hm^2 (rand/ hm^2)
First year	280000	500
Second year	290000	600
Third year	300000	700

4. A Comparison of Taxes and Fees Between China and Other Countries

4.1. Comparison of Main Tax Rates

Among all the taxes and fees paid by mining companies, corporate income tax, VAT or similar to VAT, such as goods and service tax in Australia, state turnover tax in Brazil, and royalty are the three most important taxes, which account for more than 50% of the total tax burden.

The main taxes and fees to be paid by mining companies in various countries are shown in Table 4.

Australia has the lowest goods and service tax, and its royalty is not much different from China, but the corporate income tax rate is higher than that of China. However, Australia has a fairly preferential policy on fuel consumption tax, which accounts for a large proportion of mining costs. After deduction, the actual tax rate is only 6 cents/L, which is 84% lower than that of non-mining companies. In addition, the pre-mining investment can also be amortized annually, so the actual corporate income tax rate is not high. While its 10% goods and service tax rate greatly improves the competitiveness of Australian mining companies compared with other countries.

Although Russia's resource tax rate is not different from that of China, its tax base is the value of mineral products minus production costs, the actual tax paid is lower. The corporate income tax rate is 5% lower than that in China, and all the early-stage investment of the mine, including the exploration cost of the deposit, all kinds of license and evaluation fee, land expropriation fee and mine infrastructure investment, can be amortized into the cost within a certain period, so the Russian mine has a great advantage over China in comprehensive tax burden.

As a big mining country, Brazil's resource tax is about 2% to 3% lower than China's on average, and its value-added tax is basically the same to China. However, there are preferential policies on income tax for low-profit companies, which have obvious advantages to the companies.

South Africa, a big mining country in Africa, its resource tax rate is only 1%, the value-added tax rate is 1% higher than China's. Although the corporate income tax is higher than China, it has a great competitive advantage during the period of mining market downturn.

India's resource tax is obviously high, but its VAT is low.

China not only has a high value-added tax, but also has a city construction tax of 5%，an education surcharge of 3%, a local education surcharge of 2%, which are based on value-added tax.

As a result, the high value-added tax is the main reason for the heavy tax burden of mining companies in China, and the unreasonable taxes and fees lead to the lack of competitiveness of China's metallurgical mining companies.

Table 4. *List of Main Tax & Rates of Mining Companies in the World.*

Country	Corporate Income tax	VAT	Royalty	Remo
China	25%	13%	1%~6%	The VAT is 13% since April 1, 2019.
Australia	30%	10%（GST)	West Australia:7.5% South Australia:5% Queensland:2.7%	1. VAT exemption for annual turnover less than A$75,000. 2. The tax rates for royalties vary from state to state.
Russia	20%	18%	4.80%	
Cameroon	38.50%	19.25%	2.50%	
Brazil	15%/25%	17%~19%	2%	The corporate income tax rate for profits below 240,000 Reals is 15%, and the excess is 25%.
India	37.5% 42.5%	12.5%	15%	Corporate income tax is 37.5% for domestic companies and 42.5% for foreign companies.
South Africa	33% 34%	14%	1%	Corporate income tax is 33% for domestic companies and 34% for foreign companies.

4.2. Comparison of Comprehensive Tax Burden Rate of Mining Companies

Taking two iron ore companies with production scale of 1 million tons and 2 million tons per year in Shandong Province as examples, the taxes and fees paid in each year from 2012 to 2014 are shown in Table 5 and Table 6.

Table 5. *List of Tax Burdens of the 1 Million Ton per Year Iron Ore Company from 2012 to 2014Million RMB*

Year	2012	2013	2014	Three-year average
The sum of VAT &resource tax	32.63	34.90	24.81	30.78
Total tax payment	45.51	58.82	33.02	45.78
Sales revenue	209.11	258.30	181.02	216.14
Cost	150.93	181.76	144.64	159.11

Table 6. *List of Tax Burdens of the 2 Million Ton per Year Iron Ore Company from 2012 to 2014Million RMB*

Year	2012	2013	2014	Three-year average
The sum of VAT &resource tax	63.19	46.07	49.67	52.98
Total tax payment	92.77	89.76	65.77	82.77
Sales revenue	438.59	497.42	417.49	451.17
Cost	301.47	339.79	348.50	329.92

It can conclude that the VAT and resource tax account for more than 60% of the total tax payment and are the main part of taxes and fees for mining companies. For 1 million t/a mining company, three-year average of the total tax payment accounts for 21.18% of sales revenue and 28.78% of cost respectively from 2012 to 2014. While for the 2 million t/a mining company, is 18.34% and 25.09% respectively.

According to the annual report of Rio Tinto, BHP Billiton, Vale and FMG in 2013, the tax and fee paid by Rio Tinto to the government accounted for about 16% of the total sales revenue, and the BHP Billiton is about 14%, the Vale is 15.3%, and FMG is 16.6%.

5. Conclusions

In conclusion, we can know that there are many kinds of taxes and fees to be paid by iron ore companies, and the tax burden is heavy in China.

Second, high VAT and less deductible VAT items are the main reasons for the high tax burden of mining companies in China. And the local unreasonable taxes and fees also aggravate the tax burden of mining companies.

Third, corporate income tax, value-added tax and resource tax are the main taxes of mining companies in various countries, which account for more than half of the total tax burden.

Fourth, comparing with the four major international iron ore producers, Rio Tinto, BHP Billiton, Valley and FMG, the tax burden of iron ore companies in China is about 6% higher, this also shows the heavy tax burden of China's mining companies.

6. Suggestions

6.1. The Government can Improve the Tax System and Establish a Scientific and Reasonable Tax System

6.1.1. Optimizing and Improving the Resource Tax Collection System

We suggest that the following three types of iron ore companies shall be exempted or levied a resource tax at a low level.

1. According to the different resource endowment conditions, the different resource tax rates are determined by considering the geological grade of the deposit, mining geological conditions, ore washability and associated elements that can be comprehensively recovered and utilized. For low-grade iron ore companies with complex mining geological conditions and poor ore washability, resource tax should be levied at a low limit.
2. For iron ore companies located in areas with backward economy, remote transportation and poor infrastructure, resources tax shall be levied at a low limit. The development and construction of such mines first need infrastructure construction, including road transportation of products, power supply in mining areas, etc. These infrastructures can bring great convenience for local residents to travel; secondly, after the completion and commissioning of the mine, a large number of workers are needed, which can provide many employment opportunities for the local people and improve the living standards of local residents.
3. Resources tax shall be exempted for iron ore companies mining by filling under water, railways and buildings. The mining conditions of such deposits are extremely complex. In order to ensure that the surface does not produce large deformation and collapse, a large number of infrastructure projects are needed, such as waterproof, earthquake-proof and collapse-proof. The investment is huge and the production cost is high.

6.1.2. Reducing the Tax Burden of Metallurgical Mining Companies

By comparing the comprehensive tax burden, we can see that the tax burden rates of Chinese iron ore companies are more than 6% higher than those of the four major international mining companies. The main reason is that the VAT paid by Chinese mining companies has a small deductible range and a few items. It is suggested that the input of exploration cost, mining right price paid by mining companies, capital construction investment, development engineering and production safety equipment should be regarded as input tax to deduct VAT directly or proportionally [15].

6.1.3. Abolishing all Unreasonable Local Taxes and Fees

In order to reduce the additional tax burden of mines, we hope the government can abolish all kinds of local unreasonable taxes and fees. This is also one of the reasons for the high tax burden rate of mining companies.

6.2. It Is Necessary for the Government to Adjust the Industrial Position of Mining Industry

In the early days of the founding of the PRC, mining was regarded as a workshop of metallurgical companies and mining industry was classified as the second industry.

At present, excepting that Japan and Germany classify mining industry as the second industry, the other major mining countries classify mining industry as the primary industry or basic industry (See in Table 7). Germany and Japan are due to the relative lack of resources, the economic development has entered the post-industrialization era, and the proportion of mining industry in the national economy is relatively low. China is a big country in resource demand and production, and mining industry accounts for a large proportion of the economy. As a result, mining industry bears a higher tax burden, which is 7% higher than manufacturing industry, and this lead to the weak international competitiveness of the whole industry.

The object of mining development is underground deposit, which has great uncertainty and difference. It has the characteristics of large investment, high risk and long construction period. Mineral products are the primary raw materials of processing industry, and their added value is limited. The main output value is in downstream processing industry, such as steel mills. To confuse mining industry with processing industry will seriously distort the tax system of mining industry. Therefore, re-positioning the mining industry as the primary industry is very important. It is conducive to enact relevant supporting policies, such as exempting from VAT or paying less VAT as agriculture, and improve the competitiveness of China’s iron ore companies.

Table 7. *Classification of Mining Industry in the World.*

Industry	The primary industry	Basic industry	The second industry
Country	Australia New Zealand South Africa, Chile	USA, Canada Brazil, India Russia, Saudi Arabia	Germany Japan China

6.3. It Will Be Better for the Government to Formulate National Strategy to Guarantee the Safety of Iron Ore Supply

China is a major consumer of iron ore resources, with annual consumption of more than 1.2 billion tons. In 2015, the domestic iron ore self-sufficiency rate dropped to less than 20%, and it relies heavily on imported iron ore. In recent two years, with the continuous decline of international iron ore prices, most domestic iron ore companies have cut down or stopped production because of the high production cost. In this situation, the sustainable development of China's iron and steel industry will be more constrained by imported iron ore. Therefore, we think that it is necessary to formulate the development strategy at the national level in order to maintain the appropriate self-sufficiency rate of domestic iron ore, and control the proportion of imported iron ore, which can ensure the sustainable and healthy development of China's iron and steel industry.

6.4. The Country Should Unify the Standard of Resource Tax

Since July 1, 2016, the ad valorem tax on iron ore resources has been levied, with the tax rate ranging from 1% to 6%. However, for the sake of local fiscal revenue, local governments often adopt high-limit collection, which invisibly increases the tax burden of mining companies. We strongly recommend that the country determines the standard of resource tax rate in different regions according to the factors such as the size of deposits, mining methods, resource endowment conditions and infrastructure conditions of mines.

6.5. Fuel Tax Deduction

Because the vehicles and equipment used in mining activities are only used in mining areas, but the diesel oil and fuel consumed by mining companies bear the new fuel consumption tax after the reform of refined oil prices and taxes, which directly leads to the increase of production costs of mining companies. It is suggested that the mining company can apply for a certain percentage of the fuel tax deduction every year, according to the production scale, mining mode and mining method.

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