



China's Mining Subsidies Create Tension With Free Trade Rules

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If the only tool you have is a hammer, it's tempting to treat everything as a nail. Thus, most people in the technically-oriented Bitcoin community treat the specter of mining centralization as a problem to be solved chiefly by technical means. However, a substantial cause of mining centralization is Chinese government policy, which distorts the digital currency mining market. There are creative arguments that China is violating its international trade obligations. Given the consequences for mining centralization, government subsidy for digital currency mining might be added to the list of banned activities for World Trade Organization members.

In international trade, "dumping" is a predatory pricing tactic in which manufacturers from one country export a product to another country at a price either below the price charged at home, or below its cost of production. Dumping seeks to kill off competition in the importing country, so firms in the exporting country can raise prices to supranormal levels.

Something like dumping is recognizable in the world of bitcoin mining, where the advantages Chinese firms have in chip fabrication link up with access to deeply discounted, government-provided energy to produce an unusually strong mining industry. As a result, China's mining community has a high percentage of the world's hash power, and miners elsewhere, such as KnCMiner in Sweden, have gone bankrupt.

Bitcoin Magazine [recently reported](#) that chip maker and miner, Bitmain, is building a major data center complex in the northwest of China to focus on Bitcoin. Its location, Xinjiang, is ideal because of its cold, dry climate and "access to government-supported, low cost wind and solar electricity."

The World Trade Organization's [Agreement on Subsidies and Countervailing Measures \(SCM\)](#) details what subsidies are subject to challenge by WTO members and on what terms. Cheap, government-supplied energy is a subsidy. According to the terms of the agreement it is: (i) a financial contribution; (ii) by a government or any public body within the territory of a member; (iii) that confers a benefit.

Subsidies must also be "specific." If a subsidy is widely available, it is presumed not to distort the allocation of resources. But if a government subsidy targets particular companies, sectors of the economy, regions or exports, that subsidy runs afoul of the rules.

China's hydropower glut almost certainly didn't originate to bolster a bitcoin mining industry that wasn't conceivable when the dams were built. But Chinese power subsidizes mining all the same, and it doesn't just cause economic dislocation. It undercuts Bitcoin's security. A blockchain system maintained by entities within a single government's jurisdiction is at greater risk of political manipulation and censorship.

The SCM delineates two types of subsidies: prohibited and actionable. Subsidies designed to directly affect trade and thus adversely affect other WTO members are prohibited. Actionable subsidies are those that may be shown to cause adverse effects to other WTO members. When goods are at issue, subsidies can be challenged either through multilateral dispute settlement, or through countervailing action. Subsidies for services are subject to "consultations," according to WTO rules. The Trade in Services Agreement now being hammered out in Geneva might be expanded to explicitly bar subsidies for digital currency mining, or data processing generally.

As a category buster, bitcoin and other digital currencies can be a poor fit with the traditional rules governing international trade. Anti-dumping law and the SCM apply only to trade in goods. The new bitcoins created with each block are arguably goods, even if they take digital form. The rest of the mining process is best thought of as providing transaction-inclusion services for digital currency users. When new bitcoins are no longer being created, mining will be a pure financial and data processing service.

Bitcoin transactions also don't generally have a "location." This means inclusion of any particular transaction on the Bitcoin blockchain is not easily proven to be a subsidized service to a consumer outside China, and Bitcoin transactions within China are subsidized to the same degree as transactions outside the country. Countervailing measures such as tariffs would be very hard to administer.

On the other hand, given the global trade and large proportion of Bitcoin transactions among users outside of China, bitcoins as goods and mining as transaction-inclusion services are clearly being provided to consumers outside China. These are exports, even though the precise place of purchase or location of service may be ambiguous.

Bitcoin's basis in math makes the case for wrongful subsidies much easier. The power consumption bitcoin mining requires and the hash power available to various mining groups is readily calculable, so it's quite easy to measure the substantial benefits Chinese bitcoin miners enjoy from being given cheap power.

If China were to build transmission lines that delivered energy more evenly across its economy, the argument that it was subsidizing its bitcoin mining industry would evaporate. The Chinese government may have international trade obligations that require it to withdraw the substantial benefit it now confers on its domestic bitcoin mining industry. Technological measures — such as, restraining blocksize limit, or fine tuning to reduce the amount of bandwidth it takes to

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