

Legalization of Hemp Production and its Impacts on the US Hemp Export Competitiveness

Md Rokibul Hasan and Debanjan Das, West Virginia University, USA

Keywords: Hemp, 2018 Farm Bill, RCA, NRCA, US Hemp Industry

Introduction: The United States (US) is the world's third-largest producer of industrial hemp (Zhao et al., 2022). The total value of hemp production in the US was \$824 million in 2021 (USDA, 2022). Unlike a conventional agricultural crop, industrial hemp offers versatile products that entice US farmers to grow the plant. Among all other products, it is mainly grown for fiber, oil, and cannabidiol (CBD), which are increasingly used in apparel, cosmetics, and pharmaceutical industries (Cherney & Small, 2016). This diverse usage has enabled the crop to contribute significantly to the US economy. Industrial hemp contributed \$820 million to the US economy and saw an outstanding growth of 460% (\$4.6 billion) by 2020. As the crop has been reclaiming its position by rapidly expanding into new product markets, the US hemp market is anticipated to be worth \$20 billion by 2025 (Sill, 2021). This evolution of the US hemp market can be attributed to the Agricultural Improvement Act of 2018, also known as the 2018 Farm Bill, which removed hemp and hemp seeds from the Drug Enforcement Administration's (DEA) schedule of controlled substances (Malone & Gomez, 2019). The bill authorized industrial hemp to be produced as an agricultural product and attracted US farmers to grow this multifunctional crop. This led domestic hemp production to grow four times in 2019, with a total acreage of 511,442 acres and a growth rate of 455% compared to 2018 (Campbell et al., 2020). This increased production was anticipated to meet the local demand for seeds and fibers but has yet to materialize.

Literature review: The US hemp farmers harvested only about 120,000 acres of hemp in 2019 due to a global CBD market meltdown. The hemp harvest has since followed a continuous downward trend, reaching 36,925 acres in 2021. The US hemp harvest declined to nearly 20,000 acres in 2022 (Hemp Today, 2022) as the farmers have reduced hemp farming due to regulatory uncertainties and continuously falling wholesale prices (Mark et al., 2020). On the contrary, consumers are increasingly getting captivated due to the diverse effectiveness of hemp-based products (Cherney & Small, 2016). This has resulted in an increased import of hemp in the US (Malone & Gomez, 2019). Therefore, it is critical to analyze the impacts of the 2018 Farm Bill on the United States hemp product exports. Although many studies have been conducted on Farm Bill 2018 and the US hemp industry, little research is available on how the bill impacted the export performance of the hemp-based product categories. Previous studies aimed to find out the potential of hemp (Duque Schumacher et al., 2020) as well as the hemp industry (Dhoubhadel, 2021), the economic and regulatory considerations of hemp farming (Malone & Gomez, 2019), and the viability of commercial hemp production (Mark et al., 2020). The 2018 Farm Bill's impact on the industry's comparative advantage or disadvantages can be identified

by investigating the degree of specialization of the US hemp industry, which is the aim of this study.

Methodology: Revealed comparative advantage (RCA) and normalized revealed comparative advantage (NRCA) frameworks are used in this study to measure the export competitiveness of hemp-based products and to examine how the 2018 Farm Bill impacted their export performances. RCA and NRCA are calculated for sixteen hemp-based product categories within the Harmonized System (HS) to determine the comparative advantages and disadvantages. The study utilizes data from the United Nations Commodity Trade database from 2017 to 2021. A non-parametric rank correlation is used to evaluate the consistency between the RCA and NRCA indices.

Results and discussions: The non-parametric rank correlation test generated a positive Spearman's rho ($\rho = 0.62364$, p-value <0.001) for the RCA and NRCA indices (2017 to 2021), indicating a correlation between the two measures. The results suggested that the United States held a comparative advantage in only three of the sixteen hemp product categories. They are fixed vegetable fats and oils and their fractions (HS1515), cannabis oil, extracts, and tinctures (HS130219), and hemp oil (HS151590). The three other product categories (HS5302: true raw hemp, not spun, HS120999: cannabis seeds, and HS530210: true raw hemp) experienced a fluctuation in their competitiveness over the examined period. However, the country has been performing poorly in its exports of hemp products among the remaining ten categories. These categories showed consistent comparative disadvantages from 2017 to 2021. Most importantly, the findings revealed that the farm bill did not help the hemp product categories secure export competitiveness. Several factors are found to be affecting the crop production and, consequently, limiting the growth of the industry. The Farm Bill 2018 did not allocate necessary subsidies for struggling farmers, which was a danger to small and midsize producers and the nation's farms (Olmstead, 2018). Additionally, hemp production is getting interrupted in many US regions due to the need for proper soil and environmental conditions. Also, due to the longstanding prohibition, the industry could not develop advanced supply chain systems and other facilities required to produce finished products (Chhabra, 2016). There still needs to be clarity among the industry stakeholders regarding the regulatory issues. Lastly, the economic recession due to the COVID-19 pandemic has reduced manufacturing activities, further inhibiting the industry's growth (USDA, 2022).

Conclusions: The study's findings have significant implications and contributions to academia and industry. It has demonstrated that the Farm Bill 2018 did not play any role in the growth of the US hemp industry. However, it could be too early to rule out the potential of the 2018 farm bill in developing the US hemp industry. The findings could inform the policymakers about the shortcomings of the previous bill so that they can prepare more industry-friendly legislation in the future.

References

- Campbell, J. H., Rabinowitz, A. N., & Campbell, B. L. (2020). Concern and Externalities Associated with Locating Hemp Production and Processing Facilities. *Journal of Agricultural and Applied Economics*, 52(4), 624–641. <https://doi.org/10.1017/aae.2020.22>
- Cherney, J., & Small, E. (2016). Industrial Hemp in North America: Production, Politics and Potential. *Agronomy*, 6(4), 58. <https://doi.org/10.3390/agronomy6040058>
- Chhabra, E. (2016, June 25). *Hemp is eco-friendly. So why won't the government let farmers grow it?* The Guardian. <https://www.theguardian.com/sustainable-business/2016/jun/25/hemp-farming-legalization-bill-marijuana-industry-california>
- Dhoubhadel, S. P. (2021). Challenges, Opportunities, And The Way Forward For The US Hemp Industry. *Western Economics Forum*, 19(2).
- Duque Schumacher, A. G., Pequito, S., & Pazour, J. (2020). Industrial hemp fiber: A sustainable and economical alternative to cotton. *Journal of Cleaner Production*, 268, 122180. <https://doi.org/10.1016/j.jclepro.2020.122180>
- Hemp Today. (2022, October 10). *Flight from hemp continues in U.S., with harvest expected to fall by nearly half.* <https://hemptoday.net/flight-from-hemp-continues-in-u-s-with-harvest-expected-to-fall-by-nearly-half/>
- Malone, T., & Gomez, K. (2019). Hemp in the United States: A Case Study of Regulatory Path Dependence. *Applied Economic Perspectives and Policy*, 41(2), 199–214. <https://doi.org/10.1093/aep/ppz001>
- Mark, T., Shepherd, J., Olson, D. ;, Snell, W., Proper, S., & Thornsbury, S. (2020). Economic Viability of Industrial Hemp in the United States: A Review of State Pilot Programs. *EIB-217, U.S. Department of Agriculture, Economic Research Service.*
- Olmstead, G. (2018, December 14). The Farm Bill Ignores the Real Troubles of U.S. Agriculture. *The New York Times*. <https://www.nytimes.com/2018/12/14/opinion/farm-bill-agriculture.html>
- Sill, M. (2021, October 21). *The Future Of The CBD Industry In 2022 And Beyond.* Forbes. <https://www.forbes.com/sites/forbesbusinesscouncil/2021/10/21/the-future-of-the-cbd-industry-in-2022-and-beyond/>
- USDA. (2022, February 17). *Value of hemp production totaled \$824 million in 2021.* <https://www.nass.usda.gov/>
- Zhao, X., Wei, X., Guo, Y., Qiu, C., Long, S., Wang, Y., & Qiu, H. (2022). Industrial Hemp—an Old but Versatile Bast Fiber Crop. *Journal of Natural Fibers*, 19(13), 6269–6282. <https://doi.org/10.1080/15440478.2021.1907834>