



INSTITUTO TECNOLÓGICO AUTÓNOMO DE MÉXICO

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## Seminario Aleatorio

*Sesión 363*

# Does the Hashrate Affect the Bitcoin Price?

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### Abstract

This paper investigates the relationship between the bitcoin price and the hashrate by disentangling the effects of the energy efficiency of the bitcoin mining equipment, bitcoin halving, and of structural breaks on the price dynamics. For this purpose, we propose a methodology based on exponential smoothing to model the dynamics of the Bitcoin network energy efficiency. We consider either directly the hashrate or the bitcoin cost-of-production model (CPM) as a proxy for the hashrate, to take any nonlinearity into account. In the first examined subsample (01/08/2016–04/12/2017), the hashrate and the CPMs were never significant, while a significant cointegration relationship was found in the second subsample (11/12/2017–24/02/2020). The empirical evidence shows that it is better to consider the hashrate directly rather than its proxy represented by the CPM when modeling its relationship with the bitcoin price. Moreover, the causality is always unidirectional going from the bitcoin price to the hashrate (or its proxies), with lags ranging from one week up to six weeks later. These findings are consistent with a large literature in energy economics, which showed that oil and gas returns affect the purchase of the drilling rigs with a delay of up to three months, whereas the impact of changes in the rig count on oil and gas returns is limited or not significant.

**Paper web address:** <https://www.mdpi.com/1911-8074/13/11/263>

**Viernes 26 de febrero de 2021, 11:00 horas de CDMX**

<https://itam.zoom.us/j/99716645189?pwd=SkR0K3hGVFk0TjNwTkIvZXBjW1SQT09>

Meeting ID: 997 1664 5189

Access code: 444614

El Seminario Aleatorio del Departamento de Estadística del ITAM está destinado tanto a profesores como a estudiantes, por lo que se agradece a los profesores que colaboren invitando a sus alumnos a estas sesiones.