I like the theory. There are obviously movements in the entropy immediately after the shock takes place. However, you still need time for the difference to be "detectable" even with larger shifts.   
  
Pawel wrote a paper, "Topotests", which uses the entropy to detect whether two variables are the same topologically. Since he wrote that paper I have been thinking about this time series application. The obvious question being "At what point does the time series become topologically different from the pre-shock?"  
  
There are two related points here:  
  
1. Could a different method find the step change quicker?  
2. Can TDA do better when the change is gradual?  
  
For 2 I am thinking of cases where the underlying trend in the data is non-linear, something like becoming where is some small power term. Over time, the distribution changes, but the early changes would be small.   
  
It would be useful to see the time series (including the shocks) that underly the results. In the financial application those underlying time series are what the market can see. Hope these initial thoughts make sense. It would be great to explore further.

link to Pawel's paper: <https://link.springer.com/article/10.1007/s11222-023-10333-0>  
  
I have been teaching the code as part of my classes this year, it is fairly intuitive.