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Comment William Kerr

This chapter by Alexander Field is a very interesting contribution to the conference volume. Lacking a strong background in economic history, my comments are less about the specifics of the railroad industry during the Great Depression. Instead, I focus on my major takeaways from Alex's chapter and their parallels to the experiences of the US banking industry. I then apply

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these lessons to the current position of the US auto industry, speculating on whether or not a silver lining exists for it from today's recession.

There are two moving parts in this chapter. First, Alex has an overarching discussion of the Great Depression and the substantial productivity growth that followed. There are three tributaries that he discusses: heightened R&D performance, development of the surface road network, and then specific details related to railroads and their life cycle over those twenty-five years. I focus on this third tributary, which is also where much of Alex's analysis is positioned, and we can later discuss together how these pieces all fit together.

Alex's description begins with a period of excess. Credit was easy. There was a lot of speculation and growth, resulting in some overbuilding that was not optimal or rational in the long run. We then had a period of bad times. The tide went out, and we saw who was naked. The Depression exposed fragilities and led to credit squeezing, which also potentially influenced invention or technology adoption. Ultimately, a silver lining may have existed, with surviving companies showing stronger productivity gains along the way.

My one quibble with this overall story is not about the story, but instead relates to identifying the central thesis of the chapter. There is a very broad description of everything that happened around the Great Depression, but the true emphasis here is really about the railroads. I hope to help bring sharper focus to the central questions of whether a silver lining for railroads existed due to the Depression, its relationship to the ensuing productivity boost, and ultimately to the liquidationist perspective.

Let us begin with the role of the Depression on technologies. In keeping with the conference title, did the Depression influence either the rate or the direction of technology change for railroads? Would the same technologies have been adopted anyway, but with the rate different due to the Depression? Or was the Depression centrally important in determining the types of technologies invented?

Starting with the direction question, my reading of Alex's evidence is that the direction of technical progress for the railroad industry was not centrally impacted. There does not appear evidence of directed technical change. For example, we do not see evidence of many inventions targeting the massive overcapacity in the industry. Instead, the technologies that are discussed in this chapter are things like larger car size, better logistics, and similar innovations that move freight better.

This path of technological progress does not strike one as being overly reliant on the Depression for its course. If this conclusion is in error, more discussion around the types of technologies developed would be beneficial.

Such discussion would also help identify why productivity gains were realized in one type of rail traffic more than others. Is there something about larger car sizes and logistics that especially favored freight? One can imagine

that running cars faster and longer, stuffing more into them, switching them around in the middle of the night, and so forth all naturally better served freight uses than passenger uses. If true, we can more directly link up the technology that was ripe for picking with what occurred.

On the other hand, there is more evidence that the rate of technology adoption was influenced by the Depression. Because many firms faced financial difficulties, consolidation was often necessary. This may have raised the pressure to adopt technologies faster. Logistical improvements, larger car size, and so on arrived faster because of the Depression.

That is an interesting finding because—Alex briefly touched on this—the theory around the silver lining is very ambiguous. Ricardo Caballero and similar authors argue that the liquidationist perspective does not hold, and that productivity is instead hampered. Alex's findings, especially as more detail emerges, help evaluate these contrasting perspectives.

I want to turn now to the banking industry. As I thought about comparisons to the experiences of the Depression-era railroads, the strong parallels to the banking sector from the 1970s through the 1990s stood out. The banking industry also went through a period of productivity growth and declining employment, with more interesting similarities around technologies and consolidation further evident.

First, at the beginning of the 1970s, there were many new technologies (e.g., check clearing, ATM machines) that would substantially reshape the industry's economics, much like technologies that emerged for railroads. The banking sector also had massive consolidation during its period of productivity growth around crisis times. In fact, the crisis helped allow passage of regulations that facilitated the mergers.

These parallels emphasize to me the potential role of consolidations around technologies for railroads during the Depression. We know for the banking industry that the consolidations were very important for realizing economies of scale, for achieving the technology infusion that occurred, and so on. Are railroad consolidations also an essential part of the Depression story? Can we understand the technologies and the consolidations better together than as separate factors?

Alex is able to provide some detail here, and I hope that more can be developed. He has collected very detailed accounts by hand that can be exploited further. What was the output per employee of the railroads that were acquired? Do we see low labor productivity firms being acquired by high labor productivity firms? If we aggregate the data for all 1927 firms into their 1941 consolidations, we lose some of this very interesting detail that can shed light on the productivity growth.

There is a second question on the existing regression that should also be investigated further. We observe that growing firms also show declines in labor productivity. This relationship could be partly due to using labor on both sides of the estimation. Declines in labor on the right-hand side link

to increases in labor productivity on the left-hand side as the denominator shrinks.

I bring this up because we are often concerned if the reallocation process in the economy is flowing toward unproductive firms or firms with declining productivity. That is not a good recipe for economic growth. So, it would be nice to check this finding against other measures of firm size and growth (e.g., track mileage). More broadly, further decomposition of these effects would be great.

To conclude, I now turn to the third industry: Does Alex's chapter offer hope for a silver lining to the auto industry today? Again, there are parallels. Both cases deal with a national champion industry past its peak. Today's automotive industry also has extreme financial distress, overcapacity, and related traits.

Alex's account outlines three questions we should ask. First, are there basic operational technologies that have yet to be adopted by the automobile industry that firms can be encouraged to adopt? Automobile firms are having harder times, and we are forcing them to reorganize to be competitive. Do technologies exist that are ripe for this effort?

Second, is consolidation possible to realize these benefits? This appears to be important in accounts for both the railroad and banking industries, but there are limits to further consolidation in the automobile industry. So, a third and related question would be: are there other organizational changes that are not dependent upon economies of scale that could help improve the efficiency of the automobile industry going forward?

My instinct from Alex's account is that these conditions are unlikely to be met, at least in a major way, in the automobile industry. The conditions that led to the silver lining for the railroad industry are not nearly as favorable for the auto industry today. But our ultimate conclusions will require further research to understand whether the conditions that Alex identified are necessary or sufficient conditions. Perhaps there are other channels through which a silver lining may emerge.

In conclusion, Alex's chapter is a very interesting account of a remarkable period of time. It is very important that we understand how and when the silver lining due to downturns emerges. Alex has made a nice contribution through his historical work and given us plenty to contemplate.