1 Remarks on the relationship to influential papers in the misallocation literature

1.1 Comparison to Hsieh and Klenow (2009)

This paper builds on the seminal contribution of Hsieh and Klenow (2009) . This raises the natural question of how this paper relates to that earlier paper, particularly as regards the difference in the extent to which the two papers emphasize the importance of adjustment costs, and hence dynamics.

Section VII.B of Hsieh and Klenow (HK henceforward) makes an argument that adjustment costs are unlikely to be the driver of the variation in misallocation across their three countries. The argument is based on finding very similar parameters of persistence and volatility of profits across their datasets. Thus, the scope for this mechanism to explain differences in wedges seems small.[1] We would have drawn the same conclusion, had our (very different) sample generated the same results. Instead, in both the Tier 1 sample, and the World Bank data, we see much more substantial differences in the persistence and volatility of TFPR. Hence, given our model, we reintroduce the possibility of adjustment costs contributing the dispersion documented by HK.

To illustrate the difference in results that come from the differing data sets, we reproduce the HK analysis on our data. Table 1 (below) compares our estimates of the AR(1) process on TFPR to those obtained when applying the HK profit specification to the same data. We also list the HK estimates for all our Tier 1 countries. We can replicate the HK results for two of our Tier 1 countries, India and the US. Reassuringly, our numbers for India (one of the two countries which we both have data on) are very similar to the HK numbers. The numbers for the U.S. are slightly different, but this simply reflects our use of a longer time series.[2]

In any case, the amount of cross-country variation in our data, in both persistence and volatility, is substantially different from the data used in the HK study. This, naturally, leads to somewhat differing emphasis in discussing the possible source of dispersion. That said, nothing in the current paper agues that the elimination of static distortions of the sort discussed in HK (e.g. S.O.E.'s, regulatory frictions etc) is anything other than good policy.

[1]Drawing on Cooper and Haltiwanger (2006), HK define profits as: $\pi_{it} = s_{it} - 0.5k_{it}$.

[2]We use data from 1972-1997, HK use data from 1977-1997.

Table 1: Persistence and volatility estimates: Comparing ACWDL to HK

Country	TFPR ACWDL		Profit HK replication		Profit HK original	
	ρ	σ	ρ	σ	ρ	σ
Slovenia	0.82	0.57	0.87	0.73	n.a.	n.a.
Chile	0.76	0.32	0.91	0.41	n.a.	n.a.
Mexico	0.94	0.40	0.93	0.50	n.a.	n.a.
France	0.94	0.19	0.92	0.39	n.a.	n.a.
Romania	0.81	0.39	0.81	0.75	n.a.	n.a.
Spain	0.84	0.23	0.89	0.48	n.a.	n.a.
US	0.87	0.34	0.93	0.44	0.81	0.56
India	0.84	0.29	0.87	0.45	0.84	0.57
China	n.a.	n.a.	n.a.	n.a.	0.79	0.59

Note: n.a. indicates not available/applicable. "HK original" obtained from Section VII.B page 1438 of Hsieh and Klenow (2009). All coefficients are significant, with standard errors of 0.009 or less, and we therefore omit the standard errors in the Table.

1.2 Comparison to Midrigan and Xu

Midrigan and Xu focus on the role of financing frictions in determining TFP. The aspect that is most relevant to this paper is the role of financial frictions in impeding the efficient allocation of capital within the set of already established producers (their 'misallocation' channel). Conditional on the productivity process, in the context of a calibrated version of their model, they find that the degree of misallocation generated by frictions to be sufficiently small as to be economically insignificant. In the context of their model, they attribute much of this to the persistence they infer in the productivity process.

In many ways, the findings of Midrigan and Xu mirror ours. Like Midrigan and Xu, we find considerable persistence in TFPR. While Midrigan and Xu use a somewhat different specification for the TFPR process, and do not estimate it directly (but rather infer it via the calibration), the numbers they find are comparable to what we find when we add fixed effects to our AR(1); which is the most analogous specification. Consider the AR(1) specification with fixed-effects: $\omega_{it} = \mu_i + \rho\omega_{it-1} + \sigma_\epsilon \epsilon_{it}$. In the U.S. Census Data, we find $\rho = 0.41$, $\sigma_\epsilon = 0.30$, and $\sigma_\mu = 0.41$, while Midrigan and Xu find $\rho = 0.25$,

$\sigma_\epsilon = 0.50$, and $\sigma_\mu = 1.21$. Notice that the stationary distribution of ϵ, given by $\frac{\sigma}{\sqrt{1-\rho^2}}$ is 0.3 in our specification and 0.29 in Midrigan and Xu. Thus, we find a productivity process quantitatively similar to that of Midrigan and Xu. Also, if we take the productivity process as exogenous, which Midrigan and Xu do in computing the extent of misallocation, then we too find that the dispersion observed in data is essentially that that would be generated from a social planner dictating allocation.

Hence, while taking a very different approach to a different data sample, the results in this paper and Midrigan and Xu are highly complementary.

References

[1] Cooper, Russell and John Haltiwanger (2006), On the Nature of Capital Adjustment Costs, *Review of Economic Studies*, 73(3), 611-633.

[2] Hsieh, Chang-Tai and Peter Klenow (2009), Misallocation and Manufacturing TFP in China and India, *Quarterly Journal of Economics*, 124(4), 1403-1448.

[3] Midrigan, Virgiliu and Daniel Yi Xu (Forthcoming), Finance and Misallocation: Evidence from Plant-Level Data, *American Economic Review*.