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This study examines the effect of privatization on technical efficiency, productivity and financial performance of 21 Libyan manufacturing firms from 2000 to 2008, and captures also the pre and post privatization effects of those measures, by applying the Frontier Data Envelopment Analysis (DEA) technique. Comparisons are also made meaningful by separating the firms into two ownership structures: state owned and fully privatized. As we are also assessing the pre and post privatization effects, the Wilcoxon Matched-Pairs Signed Rank Test is used to test for independence between-subjects designs. Technical efficiency scores of all manufacturing firms before and after privatization are computed using the input-oriented DEA model, proven to be suitable for determining technical efficiency. The findings from the analysis show that 42.9 per cent of the entire firms operate above average and 57.1 per cent operate below the average score. However, no firm has scored full efficiency ($TE = 1.00$). Even though the findings show an overall improvement in technical efficiency of 12.8 per cent, this is not consistent with the privatization theory. In evaluating the ownership types for pre and post privatization, the findings reveal that fully privatized firms are more efficient after privatization, implying better performance than state control firms. In terms of the Total Factor Productivity analysis, the findings show that the productivity of

16 (76.19 per cent) firms out of 21 firms decline after privatization. Specifically 5 of the firms (23.81 per cent) recorded average productivity growth of 1.061 after privatization which later declined to 0.925. The decline in productivity (0.136) was not consistent with the theory. In terms of ownership types for pre and post privatization, the findings show that productivity for both groups decline after privatization. The decline in productivity for both groups has resulted in a drop in technical change (frontier shift) after privatization due to technological regression after privatization. The financial performance is analyzed under different headings, namely: profitability, operating efficiency, leverage and employment. In the case of full sample, the results show significant improvements in one of the profitability measures, i.e., return on sales (ROS). In terms of operating efficiency are two measures, which are sales efficiency (real sales per employee) and net income efficiency. These measures show significant improvements after privatization. Leverage measure is via total debt to total asset. As expected, this measure show significant decline after privatization, for all firms. The results also show that the number of employees decrease after privatization. These improvements, however, are consistent with the theory.