Baseline results summary

I have established that raising MW indeed increases manufacturing industry labour costs, cost of materials and outputs, especially in the $2014$ and $2015$ cohorts. I also find increases in output per hour and labour productivity, across all cohorts. Moreover, the hypothesis of null overall employment effect subsists with heterogeneity in specific cohorts. While cross-county worker mobility is responsible for the disemployment effects of low-skilled workers in low-profit and labour-intensive industries, the positive employment effect in the $2015$ cohort is entirely due to the hiring of more high-skilled workers in high-profit and capital-intensive industries caused by the higher MW policy. However, there is notable decline in material cost and output in the $2017$ cohort caused by a corresponding disemployment effect.

Main Results

The results on total onsite releases intensity are reported in Table 5, and dominated in the $2014$ and $2015$ cohorts. It shows that a higher MW policy increases total onsite releases intensity in treated counties relative to adjacent control counties. There is limited evidence of an increase in the total onsite releases intensity in the $2017$ cohort.

This effect is driven by the increase in total air emissions intensity both from point and fugitive sources, dominated in the $2014$ and $2015$ cohorts, respectively. I find limited evidence of an increase in the $2017$ cohort.

Additionally, I find no statistically significant differences in the overall effect of raising MW on surface water discharge intensity. However, I find heterogeneous effect between the $2014$ and $2015$ cohorts. Whereas raising MW reduces surface water discharge in the $2014$ cohort, and the opposite is documented in the $2015$ cohort. The positive effect on the $2017$ cohort is generally muted.

Lastly, except for the total surface impoundment intensity, I find no statistically or economically significant effect on the intensities of total land releases, underground injection, landfills and to-land treatment (releases used for land fertilization). The results show that a higher MW floor increases in total surface impoundment intensity by $1.1ppts$ in treated counties relative to adjacent control counties. Similarly, the cohort-specific effect shows an increase in total land releases and landfill intensities in the $2017$ and $2014$ cohorts. The positive effect on the $2015$ cohort is insignificant.

Heterogeneous effects

high-profit-labour-intensive: The above effects in total toxic releases intensity vary by profitability levels and production technology classification of manufacturing industries. The observed decline in toxic release intensity is largely attributable to the significant reduction in the $2015$ cohort, for the high-profit-labour-intensive industries. This is driven by the corresponding decline in total air emissions intensity (from both point and fugitive sources), land releases intensity, especially in the $2014$ and $2017$ cohorts, and the increase in surface impoundment intensity, especially in the $2015$ and $2017$ cohorts. Conversely, the increase in fugitive air emission intensity for the $2014$ is driven by the corresponding decline in surface impoundment intensity.

high-profit-capital-intensive: In contrast, for the high-profit-capital-intensive manufacturing industries, the results show a significant positive effect, indicating that toxic release intensity is highest among high-profitable-capital-intensive manufacturing industries due to a higher MW floor which culminated into higher employment, labour productivity, outputs, and profits. This increase is driven by rises in total air emissions intensities, from fugitive sources, surface water discharge, and land releases intensities including surface impoundment. There is limited evidence of increases in point air emission intensity.

low-profit-labour-intensive: The results reveal a decreasing differential effect of $16.3ppts$ on toxic release intensity due to a higher MW in low-profit-labour-intensive manufacturing industries, especially in $2015$ cohorts. This effect is driven by the corresponding decline in total air emission intensities, particularly from stack/point sources. Conversely, I find a significant differential increases in fugitive air emission intensity in the $2014$ and $2017$ cohorts.

low-profit-capital-intensive: Furthermore, except for significant declining effect on fugitive air emission intensity in low-profit-capital-intensive manufacturing industries, there is limited evidence of increases in the intensities of total toxic releases, point air emissions, land releases, and surface impoundment.

Highest and lowest emitting industries: The increase in total releases intensity is present in both HEIs and LEIs in $2014$ and $2015$ cohorts, essentially driven by total air emissions (both point and fugitive sources), surface water discharge and surface impoundment intensities. But the results vary by cohorts. I find evidence of a significant decline in point air emissions intensity in the $2014$ cohort.

Highest GDP counties: I find a negligible and insignificant effect on onsite total toxic releases intensity for high GDP counties. Similarly, there is a differential increase in the intensities of fugitive air emissions and surface water discharge in the $2017$ cohort. The effect on total air emissions intensity from point sources, and land releases intensity including surface impoundment are muted. In contrast, there is significant differential increase in total toxic release and surface impoundment intensities for low GDP counties, and limited evidence on air emissions intensity from point and fugitive sources, surface water discharge, and land releases intensities.

High-competitive industries: Except for the significant differential increases in fugitive air emissions and surface water discharge intensities in the $2015$ cohort for low-concentrated or highly competitive manufacturing facilities, the effect on the intensities of total toxic releases, air emissions from point sources, land releases and surface impoundment are muted. I also find evidence of a declining surface water discharge intensity in the $2014$ cohort. Conversely, except for the significant increases in surface impoundment intensity for the high-concentrated or less-competitive manufacturing industries, there is limited evidence of a significant effect on the intensities of total toxic releases, air emissions from point and fugitive sources, surface water discharge and land releases.

Carcinogenic chemicals: The cohort-specific effects suggest that high MW may potentially increase carcinogenic releases in the $2015$ and $2017$ cohorts, particularly from both point and fugitive air emission sources. Additionally, there is a significant differential decline in surface water discharge and surface impoundment intensities of carcinogenic chemicals, notably in the $2014$ and $2015$ cohorts.

CAA-HAPs chemicals: The overall effect on total toxic release intensities is negligible for common-CAA-HAPs. However, there is a substantial increase in toxic chemical release intensity in the $2017$ cohorts, driven primarily by a rise in total air emission intensities (both point and fugitive sources), especially in the $2015$ and $2017$ cohorts. Additionally, surface water discharge intensity declines for common-CAA-HAPs, particularly in the $2014$ cohorts, but increases for uncommon-CAA-HAPs.

PBT chemicals: For PBT chemicals, the cohort-specific effects for $2014$ and $2017$ indicate significant differential declines in the intensities of total releases and air emissions, including point sources and land releases. Overall, point air emissions and land releases intensities for PBT chemicals show a significant decline. The effects on surface water discharge intensity for PBT chemicals are vary by cohorts. Whereas it declines for the $2014$ cohorts, the opposite is true for the $2015$ cohort.