

Supplementary Materials (For Online Publication Only)

Capital Market Integration, Labor Market Distortion, and Labor Misallocation

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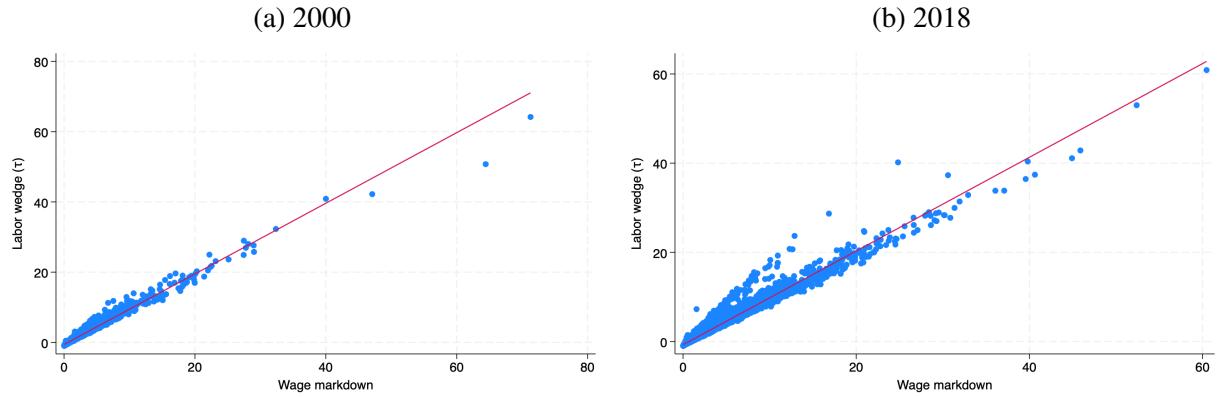
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A Additional Figures and Tables

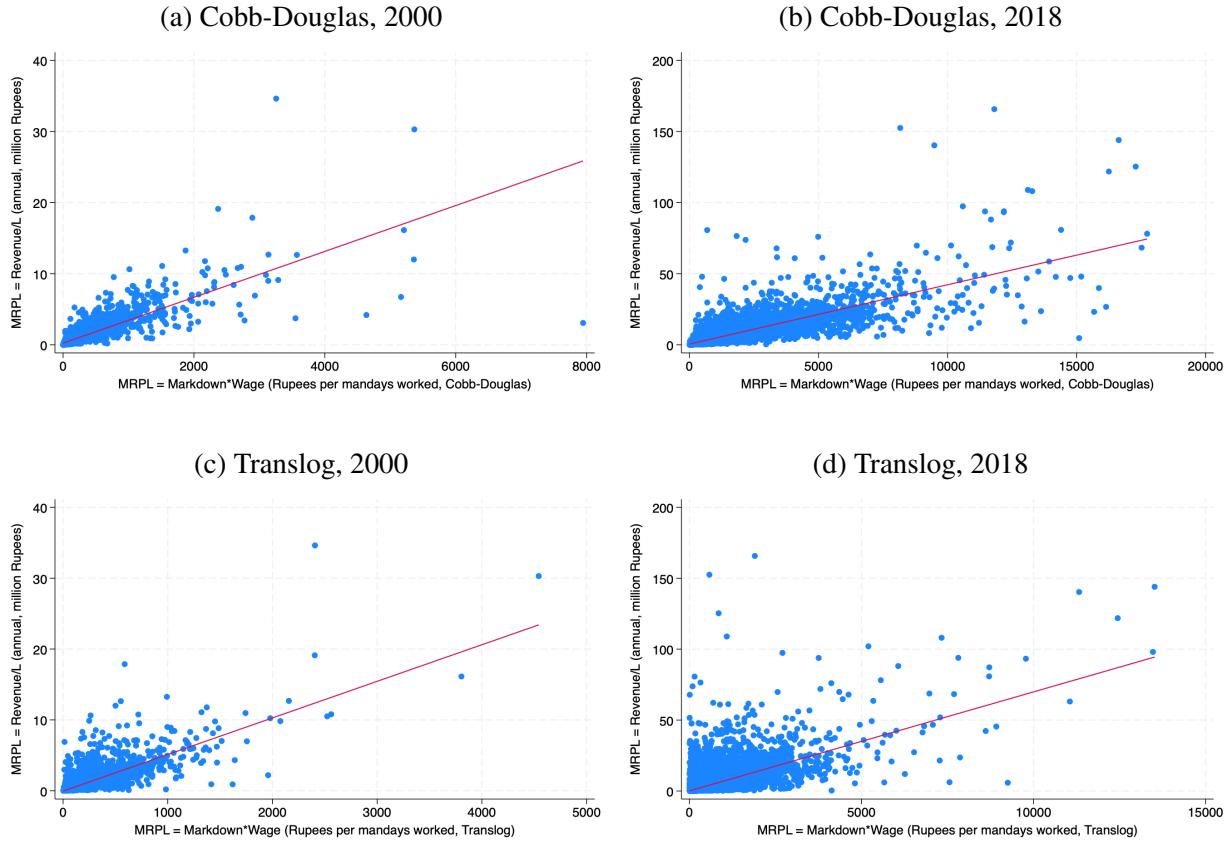
A.1 Additional Figures

Figure A.1: Labor Wedge and Wage Markdowns (Cobb-Douglas)



Notes: The figure plots the relationship between labor wedge (τ_i^L) and wage markdowns (η_i) for firm i in 2000 (panel (a)) and 2018 (panel (b)). The labor wedge is calculated using the “conventional” approach $\tau_i^L = \theta_j^L/\alpha_i^L - 1$ as in [Bau and Matray \(2023\)](#) under the assumption of a Cobb-Douglas production function. The wage markdown is computed using equation (1), and the output elasticities of labor (θ_j^L) and intermediate materials (θ_j^M) are estimated under the same Cobb-Douglas production function form. The shares of expenditure on labor (α_i^L) and intermediate materials (α_i^M) in revenue are obtained directly from the data.

Figure A.2: Comparison between MRPL Estimates



Notes: The figure plots the relationship between MRPL measured by Revenue/L as in [Bau and Matray \(2023\)](#) on the vertical axis and MRPL measured using equation (3) on the horizontal axis. Markdowns in panel (a)-(b) and (c)-(d) are estimated under the assumption of Cobb-Douglas and Translog production functions, respectively. The estimates of MRPL in panels (a)-(c) and (b)-(d) are in 2000 and 2018, respectively.

A.2 Additional Tables

Table A.1: Summary Statistics for Prowess Sample

	No liberalized			Liberalized		
	Mean	SD	Median	Mean	SD	Median
Firm Age	30.6	18.8	26.0	32.4	17.0	29.0
Capital stock (log)	18.4	1.8	18.4	18.3	1.7	18.2
Sales revenue (log)	19.7	1.7	19.7	19.8	1.6	19.8
Employment (log)	6.4	1.4	6.5	5.9	1.2	5.7
Labor cost (log)	17.7	1.7	17.7	17.8	1.6	17.8
Markdown	3.0	2.1	2.5	3.2	1.9	2.9
MRPL (log)	18.5	1.9	18.5	18.8	1.7	18.8
<i>N</i>	234,653			12,151		

Notes: The table presents the summary statistics for firms' characteristics by treatment (FDI liberalization) status. The sample is based on Prowess data from 2001-2019 on which wage markdown has been estimated. An observation is at the firm-year level. Capital stock is the net fixed assets. Employment is the number of workers. The firm-level wage markdowns are estimated under the assumption of translog production function in the manufacturing industry. The marginal revenue product of labor (MRPL) is computed by multiplying the labor cost by firm-level markdowns. All dollar values have been converted to Rupees using the exchange rates.

Table A.2: Heterogeneous Effects of the Foreign Capital Liberalization on Male and Female Workers by Firms' Ex ante MRPL (Alternative Control Group)

	$\ln L_{it}$ (1)	$\ln W_{it}$ (2)	$\ln w_{it}$ (3)	$\ln MRPL_{it}$ (4)	$\ln \eta_{it}$ (5)
Panel A. Male workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.026 (0.115)	0.122 (0.198)	0.192 (0.121)	0.008 (0.091)	-0.184 (0.204)
$\text{Post}_t \times \text{Reform}_j$	0.098 (0.116)	0.021 (0.192)	-0.070 (0.093)	-0.114 (0.135)	-0.044 (0.223)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.069 (0.058)	0.024 (0.054)	-0.094** (0.035)	-0.157* (0.082)	-0.063 (0.079)
N	4905	4905	4905	4905	4905
R^2	0.94	0.96	0.88	0.81	0.81
Panel B. Female workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.423*** (0.117)	0.430* (0.238)	0.090 (0.138)	-0.233*** (0.036)	-0.322** (0.138)
$\text{Post}_t \times \text{Reform}_j$	-0.503*** (0.123)	-0.505** (0.180)	0.024 (0.094)	0.342 (0.211)	0.318 (0.280)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.158** (0.065)	0.123* (0.064)	-0.083* (0.039)	-0.139 (0.083)	-0.056 (0.086)
N	4905	4905	4905	4905	4905
R^2	0.89	0.91	0.88	0.87	0.81

Notes: Based on ASI data from 2002 to 2018, on which wage markdowns over male and female workers have been estimated. The table presents the results from OLS regressions, which estimate the heterogeneous effects of FDI liberalization by firms' ex ante MRPL. The outcomes in columns 1–5 are employment (headcount), labor cost, average wage, MRPL, and markdowns for male (Panel A) and female (Panel B) workers, respectively. All dependent variables are in logs. The treatment is the alternative treatment variable, a dummy indicating the 2006 FDI reform, with never-treated and 1991 reform industries in the control group. The establishment-level wage markdowns over male and female workers are estimated under the assumption of a translog production function with heterogeneous workers. The marginal revenue product of labor (MRPL) for male and female workers is calculated by multiplying the average wage for each type of worker by the establishment-level markdowns for that type of worker. All specifications control for firm, firm age, and firm pre-treatment size-by-year fixed effects. Standard errors are two-way clustered at the 4-digit industry and year level and are presented in parentheses. Significance: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A.3: Heterogeneous Effects of the Foreign Capital Liberalization on Male and Female Workers by Firms' Ex ante MRPL (Ex ante Period = 2001)

	$\ln L_{it}$ (1)	$\ln W_{it}$ (2)	$\ln w_{it}$ (3)	$\ln MRPL_{it}$ (4)	$\ln \eta_{it}$ (5)
Panel A. Male workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.408 (0.285)	0.441 (0.316)	0.102 (0.141)	0.160** (0.071)	0.059 (0.147)
$\text{Post}_t \times \text{Reform}_j$	-0.090 (0.249)	-0.121 (0.232)	0.019 (0.122)	-0.282*** (0.052)	-0.301* (0.162)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.141** (0.065)	0.113 (0.069)	-0.098*** (0.023)	-0.170** (0.076)	-0.072 (0.071)
N	3615	3615	3615	3615	3615
R^2	0.94	0.96	0.89	0.83	0.83
Panel B. Female workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.676** (0.238)	0.502 (0.296)	-0.099 (0.140)	-0.629* (0.314)	-0.531 (0.425)
$\text{Post}_t \times \text{Reform}_j$	-0.719** (0.263)	-0.602** (0.225)	0.172 (0.103)	0.486 (0.340)	0.314 (0.414)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.122 (0.087)	0.161** (0.075)	-0.025 (0.020)	-0.070 (0.064)	-0.044 (0.060)
N	3615	3615	3615	3615	3615
R^2	0.89	0.92	0.88	0.88	0.83

Notes: Based on ASI data from 2002 to 2018, on which wage markdowns over male and female workers have been estimated. The table presents the results from OLS regressions, which estimate the heterogeneous effects of FDI liberalization by firms' ex ante MRPL. The ex ante MRPL is defined as the 2001 value of MRPL. The outcomes in columns 1–5 are employment (headcount), labor cost, average wage, MRPL, and markdowns for male (Panel A) and female (Panel B) workers, respectively. All dependent variables are in logs. The treatment is our baseline treatment variable, a dummy indicating the 2006 FDI reforms, with never-treated industries in the control group. The establishment-level wage markdowns over male and female workers are estimated under the assumption of a translog production function with heterogeneous workers. The marginal revenue product of labor (MRPL) for male and female workers is calculated by multiplying the average wage for each type of worker by the establishment-level markdowns for that type of worker. All specifications control for firm, firm age, and firm pre-treatment size-by-year fixed effects. Standard errors are two-way clustered at the 4-digit industry and year level and are presented in parentheses. Significance: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A.4: Heterogeneous Effects of the Foreign Capital Liberalization on Male and Female Workers by Firms' Ex ante MRPL (Residualized Ex ante MRPL)

	$\ln L_{it}$ (1)	$\ln W_{it}$ (2)	$\ln w_{it}$ (3)	$\ln MRPL_{it}$ (4)	$\ln \eta_{it}$ (5)
Panel A. Male workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.022 (0.127)	0.026 (0.189)	0.068 (0.088)	-0.026 (0.100)	-0.093 (0.175)
$\text{Post}_t \times \text{Reform}_j$	0.110 (0.131)	0.106 (0.185)	0.035 (0.080)	-0.119 (0.135)	-0.155 (0.191)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.152** (0.063)	0.108* (0.060)	-0.092** (0.036)	-0.148* (0.074)	-0.056 (0.076)
N	4112	4112	4112	4112	4112
R^2	0.94	0.96	0.88	0.82	0.82
Panel B. Female workers					
$\text{Post}_t \times \text{Reform}_j \times I_i^{\text{High MRPL}}$	0.489*** (0.119)	0.426 (0.272)	-0.003 (0.114)	-0.606*** (0.164)	-0.603** (0.260)
$\text{Post}_t \times \text{Reform}_j$	-0.611*** (0.159)	-0.554** (0.204)	0.107 (0.071)	0.585* (0.290)	0.478 (0.339)
$\text{Post}_t \times I_i^{\text{High MRPL}}$	0.180** (0.076)	0.167** (0.076)	-0.057 (0.042)	-0.037 (0.062)	0.020 (0.069)
N	4112	4112	4112	4112	4112
R^2	0.89	0.92	0.88	0.87	0.82

Notes: Based on ASI data from 2002 to 2018, on which wage markdowns over male and female workers have been estimated. The table presents the results from OLS regressions, which estimate the heterogeneous effects of FDI liberalization by firms' ex ante MRPL. The ex ante MRPL is residualized by 2-digit industry fixed effects. The outcomes in columns 1–5 are employment (headcount), labor cost, average wage, MRPL, and markdowns for male (Panel A) and female (Panel B) workers, respectively. All dependent variables are in logs. The treatment is our baseline treatment variable, a dummy indicating the 2006 FDI reforms, with never-treated industries in the control group. The establishment-level wage markdowns over male and female workers are estimated under the assumption of a translog production function with heterogeneous workers. The marginal revenue product of labor (MRPL) for male and female workers is calculated by multiplying the average wage for each type of worker by the establishment-level markdowns for that type of worker. All specifications control for firm, firm age, and firm pre-treatment size-by-year fixed effects. Standard errors are two-way clustered at the 4-digit industry and year level and are presented in parentheses. Significance: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.