The impact of political connection on labor market outcomes: Evidence from Indonesia

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Oct 26, 2016
Introduction and Background

- Networks improve prospects in the labor market, both in developed and developing countries
- Anecdotal evidence that political connection are also important, especially in developing countries
  - Large literature on the value of political connections for firms
  - Limited empirical evidence on labor market outcomes
- Research question: what is the value of being politically connected for labor market outcomes?
Why might political connection matter for labor markets?

At the time of labor market entry

- Provide labor market information
- Access to high-paying sectors due to nepotistic behavior of the political elite
- Reciprocal relationship between connected individuals and employers

And also

- Greater human capital investment during childhood

Ideal to separate the impact on human capital investment from direct labor market influences
Existing research on the value of political connection

Gagliarducci and Manacorda (2014)
- Connection established by last name and municipality of birth
- Panel data approach: impact of the timing of office-holding on earnings and employment
- Estimated effect on earnings is 16 percent

Fafchamps and Labonne (2015)
- Connection established by last name
- Regression discontinuity design: relatives of narrowly elected officials have larger likelihood of employment in managerial positions
- Results driven by employment in the public sector
In this research

- Use household survey data from Indonesia
  - Control for richer data on family background
- Use government employment of family members as a measure of political connection
  - Connection to bureaucrats more widespread than connection to elected officials
- Exploit variation in political connection caused by Indonesia’s transition to democracy
Main findings

- Being politically connected increases monthly income by greater than 45 percent
- Some part of the effect comes from greater human capital investment
- Evidence of segmentation in the labor market
Important for understanding labor market institution

- Better understanding of the role of political networks
  - Current focus on impact of social networks (Munshi 2003, Beaman 2012)
- Existence of political influence can distort the incentives and lower human capital investment among the majority of population lacking such influence
  - Implications for socio-economic mobility: the poor tend to have less access to political influence
- Better understand the legacy of Indonesia’s authoritarian past
Theoretical model: determination of earnings

Consider a two-period model

- First period - invest in human capital $(E_{ij}, \theta_{ij}) = f(P_{ij}, .)$
  - $f(.)$ is the human capital production function, which takes connection status as one of its inputs
  - $E_{ij}$ is observed human capital; $\theta_{ij}$ unobserved human capital
- Second period - earnings determined according to following equation

$$Y_{ij} = \alpha P_{ij} + \beta E_{ij} + \gamma X_{ij} + \theta_{ij} + c_j + e_{ij}.$$  

where, $Y_{ij}$ is labor market outcome; $P_{ij}$ is measure of political connection; $X_{ij}$ is vector of controls; $\theta_{ij}$, $e_{ij}$, and $c_j$ are unobserved determinants of earnings

- Estimates of $\alpha$ biased in presence of $\theta_{ij}$
Use exogenous shock to political connection for identification

- Assume all investments take place before labor market entry
- An exogenous shock before labor market entry changes previously held political capital
- Use the resulting variation in political connection at the time of labor market entry for identification
- Democratization in Indonesia provides an ideal context to implement this strategy
Indonesian context: defining political connection

Politically connected = living in households with government employee in 1993

- Before 1999, Indonesia governed by an autocratic regime of President Soeharto and his party Golkar
- Institutional structure of pre-democratic Indonesia makes government employees more likely to be connected to Golkar
  - The regime used patronage and clientelistic behavior to maintain power
  - Government employees more likely to be connected to Golkar
Indonesian context: 1999 democratic election as source of exogenous variation

Golkar’s performance in the 1999 election determined continuance of political connections of government employees

- Decentralization meant that district governments had more political power
- If Golkar won in a district, political connections of Soeharto-era government employees in those districts remained intact
Difference-in-differences strategy

Table: Expected earnings by Golkar’s win and pre-election connection status

<table>
<thead>
<tr>
<th>Pre-election connection</th>
<th>Golkar’s performance in 1999 election</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected ($P_{ij} = 1$)</td>
<td>$\alpha + \beta E_i + \gamma X_i + \theta_1 + c_1$</td>
</tr>
<tr>
<td>Unconnected ($P_{ij} = 0$)</td>
<td>$\theta_0 + \beta E_i + \gamma X_i + c_1$</td>
</tr>
</tbody>
</table>

where $\theta_k = \mathbb{E}(\theta_i|P_i = k)$ and $c_k = \mathbb{E}(c_j|G_j = k)$ for $k = 0, 1$.

Difference-in-differences estimates the value of political connections $\alpha$:

$$\alpha = \mathbb{E}(Y_{ij}|P_{ij} = 1) - \mathbb{E}(Y_{ij}|P_{ij} = 0) - [\mathbb{E}(Y_{ij}|P_{ij} = 1, G_j = 0) - \mathbb{E}(Y_{ij}|P_{ij} = 0, G_j = 0)]$$
Possible identification issues

- Human capital investment before the elections correlated with Golkar’s eventual electoral performance
  - Households predicted Golkar’s performance, perhaps because they knew about local electoral preferences
- Labor market outcomes after election correlated with Golkar’s performance
  - Through labor market policies
Possible identification issues

Addressed by

1. Including a measure of Golkar’s performance at the sub-district level
   - *Assumption*: conditional on popularity at the sub-district level, Golkar’s district-level performance does not enter the human capital production function

2. Unconnected households as “controls” - they should only be affected by Golkar’s performance through channels other than political influence (for example, policy)
Estimating equation

\[ Y_{ij} = \beta_0 + \beta_1 P_{ij} + \beta_2 G_j + \alpha C_{ij} \ast G_j + X_{id}' \eta + \epsilon_{ij} \]

where, \( Y_{ij} \) is log of earnings of individual \( i \) in district \( j \),
\( C_{ij} = 1 \) if living in HH with government employee in 1993,
\( G_j = 1 \) if Golkar got highest vote share in district \( j \),
\( X_{id} \) vector of controls
Data source

- Individual data from the Indonesian Family Life Survey (IFLS)
  - For those aged < 25 in 1993, labor market outcomes from the 2007 IFLS
- Connection to Golkar - if living in a household where an adult family member had a government job in 1993, the first year of IFLS survey
- Party-wise vote share data at district and sub-district level
- Control for 1993 household characteristics (per capita consumption, assets, household education, religion), region and urban dummies
Golkar’s district-level electoral outcome in the 1999 election
Distribution of Golkar’s win margin

**Figure:** Histogram of difference between Golkar’s vote share and non-Golkar maximum vote share.
Sample criteria

- In Sulawesi islands, Golkar won in all the districts in IFLS sample
  - Remove individuals who lived in this region from the sample
- Remove districts with less than 5 sub-districts
  - Ensure that sub-district results, which may be endogenous, do not greatly influence district-level result

**Table:** Distribution of 5-24 year olds by region and Golkar’s district result

<table>
<thead>
<tr>
<th>Region</th>
<th>Golkar lost</th>
<th>Golkar won</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumatra</td>
<td>2669</td>
<td>184</td>
</tr>
<tr>
<td>Java</td>
<td>6911</td>
<td>121</td>
</tr>
<tr>
<td>Nusa Tenggara</td>
<td>375</td>
<td>803</td>
</tr>
<tr>
<td>Kalimantan</td>
<td>140</td>
<td>378</td>
</tr>
<tr>
<td>Sulawesi</td>
<td>0</td>
<td>833</td>
</tr>
</tbody>
</table>
In the first wave, IFLS randomly picked household members for detailed survey - 4 adults and 2 children

These individuals were priority for follow-up interview in later waves

Later waves interviewed all household members present

Among those picked in the first wave, 82% tracked in 2007

But from the entire roster, only 66% tracked in 2007

Selection model where being picked for interview in the first wave provides exclusion restriction
<table>
<thead>
<tr>
<th>Variables</th>
<th>Golkar lost</th>
<th>Golkar won</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num. obs.</td>
<td>Mean</td>
</tr>
<tr>
<td><strong>Panel A: Household-level variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log per cap expen 1993</td>
<td>5157</td>
<td>10.822</td>
</tr>
<tr>
<td>Log total assets 1993</td>
<td>5157</td>
<td>15.079</td>
</tr>
<tr>
<td>HH yrs of educ</td>
<td>5157</td>
<td>7.018</td>
</tr>
<tr>
<td>Connected in 1993</td>
<td>5157</td>
<td>0.165</td>
</tr>
<tr>
<td>Non-Muslim religion</td>
<td>5157</td>
<td>0.127</td>
</tr>
<tr>
<td>Urban in 93</td>
<td>5157</td>
<td>0.455</td>
</tr>
<tr>
<td><strong>Panel B: Schooling outcomes in 1997 for aged 15-20 in 1993</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In school 97</td>
<td>1660</td>
<td>0.161</td>
</tr>
<tr>
<td>High educ 97</td>
<td>1660</td>
<td>0.466</td>
</tr>
<tr>
<td>Employed 97</td>
<td>1660</td>
<td>0.426</td>
</tr>
<tr>
<td><strong>Panel C: Test score in 1997 for those aged 5-24 in 1993</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math score</td>
<td>4313</td>
<td>14.936</td>
</tr>
<tr>
<td>Indonesian lang. score</td>
<td>4313</td>
<td>16.703</td>
</tr>
</tbody>
</table>
Pre-election balance: household characteristics in 1993

<table>
<thead>
<tr>
<th></th>
<th>(1) Per cap. exp.</th>
<th>(2) Assets</th>
<th>(3) HH education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected in 1993=1</td>
<td>0.451***</td>
<td>0.995***</td>
<td>4.023***</td>
</tr>
<tr>
<td></td>
<td>(0.0370)</td>
<td>(0.0806)</td>
<td>(0.181)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>0.158**</td>
<td>0.107</td>
<td>1.485***</td>
</tr>
<tr>
<td></td>
<td>(0.0695)</td>
<td>(0.250)</td>
<td>(0.346)</td>
</tr>
<tr>
<td>Connected X Golkar win</td>
<td>0.0295</td>
<td>-0.169</td>
<td>0.212</td>
</tr>
<tr>
<td></td>
<td>(0.0788)</td>
<td>(0.205)</td>
<td>(0.420)</td>
</tr>
<tr>
<td>Constant</td>
<td>10.23***</td>
<td>12.80***</td>
<td>5.382***</td>
</tr>
<tr>
<td></td>
<td>(0.0813)</td>
<td>(0.150)</td>
<td>(0.311)</td>
</tr>
</tbody>
</table>

Observations          5863  5863  5863
R-squared              0.216  0.0644  0.313

Standard errors clustered at sub-district level in parenthesis.
*  p < .1, **  p < .05, ***  p < .001

Other control vars include categories of Golkar’s sub-district vote share, non-Muslim religion dummy, urban dummy, region fixed-effects. Sample is households.
## Pre-election balance: schooling characteristics in 1997

<table>
<thead>
<tr>
<th></th>
<th>(1) In sch 1997</th>
<th>(2) High ed 1997</th>
<th>(3) Employed 1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected in 1993=1</td>
<td>0.576***</td>
<td>0.546***</td>
<td>-0.189*</td>
</tr>
<tr>
<td></td>
<td>(0.133)</td>
<td>(0.125)</td>
<td>(0.113)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>0.155</td>
<td>0.350*</td>
<td>-0.0904</td>
</tr>
<tr>
<td></td>
<td>(0.198)</td>
<td>(0.194)</td>
<td>(0.192)</td>
</tr>
<tr>
<td>Connected X Golkar win</td>
<td>0.0643</td>
<td>-0.0740</td>
<td>-0.202</td>
</tr>
<tr>
<td></td>
<td>(0.451)</td>
<td>(0.397)</td>
<td>(0.344)</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.984***</td>
<td>-0.746***</td>
<td>-1.141***</td>
</tr>
<tr>
<td></td>
<td>(0.203)</td>
<td>(0.131)</td>
<td>(0.131)</td>
</tr>
<tr>
<td>Observations</td>
<td>1891</td>
<td>1897</td>
<td>1897</td>
</tr>
<tr>
<td>Diff, Golkar lost</td>
<td>0.0940</td>
<td>0.155</td>
<td>-0.0674</td>
</tr>
<tr>
<td>Diff, Golkar won</td>
<td>0.122</td>
<td>0.143</td>
<td>-0.133</td>
</tr>
<tr>
<td>P-value of H0: Diff-in-Diff = 0</td>
<td>0.775</td>
<td>0.920</td>
<td>0.556</td>
</tr>
</tbody>
</table>

Other control vars include categories of Golkar's sub-district vote share, age, male, categories of household education, non-Muslim religion dummy, urban dummy, region fixed-effects. Sample is individuals aged 15-20 in 1993.
### Pre-election balance: standardized test scores in 1997

<table>
<thead>
<tr>
<th></th>
<th>(1) Mathematics score</th>
<th>(2) Indonesian score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected in 1993=1</td>
<td>0.975** (0.370)</td>
<td>1.030** (0.340)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>1.087* (0.644)</td>
<td>1.059* (0.551)</td>
</tr>
<tr>
<td>Connected X Golkar win</td>
<td>-0.629 (0.915)</td>
<td>0.241 (0.819)</td>
</tr>
<tr>
<td>Own educ in 1997 (base: primary or less)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>2.139*** (0.295)</td>
<td>3.033*** (0.284)</td>
</tr>
<tr>
<td>Senior</td>
<td>3.779*** (0.419)</td>
<td>4.796*** (0.395)</td>
</tr>
<tr>
<td>College</td>
<td>5.182*** (0.764)</td>
<td>6.167*** (0.650)</td>
</tr>
<tr>
<td>Observations</td>
<td>4969</td>
<td>5073</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.317</td>
<td>0.237</td>
</tr>
</tbody>
</table>

Other control vars include categories of Golkar’s sub-district vote share, age dummies, male dummy, categories of household education, non-Muslim religion dummy, urban dummy, region fixed-effects. Sample is individuals aged 5-24 who took the tests.
### Table: Summary statistics of individuals aged 5-24 in 1993

<table>
<thead>
<tr>
<th>Variables</th>
<th>Golkar lost</th>
<th></th>
<th></th>
<th>Golkar won</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num. obs.</td>
<td>Mean</td>
<td>SD</td>
<td>Num. obs.</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Log earnings 07</td>
<td>3931</td>
<td>13.101</td>
<td>1.101</td>
<td>549</td>
<td>12.913</td>
<td>1.088</td>
</tr>
<tr>
<td>Connected in 1993</td>
<td>3931</td>
<td>0.166</td>
<td>0.372</td>
<td>549</td>
<td>0.182</td>
<td>0.386</td>
</tr>
<tr>
<td>Own educ in 2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>3931</td>
<td>0.153</td>
<td>0.360</td>
<td>549</td>
<td>0.157</td>
<td>0.364</td>
</tr>
<tr>
<td>Senior</td>
<td>3931</td>
<td>0.346</td>
<td>0.476</td>
<td>549</td>
<td>0.242</td>
<td>0.429</td>
</tr>
<tr>
<td>College</td>
<td>3931</td>
<td>0.155</td>
<td>0.362</td>
<td>549</td>
<td>0.129</td>
<td>0.339</td>
</tr>
<tr>
<td>HH yrs of educ</td>
<td>3931</td>
<td>7.005</td>
<td>3.891</td>
<td>549</td>
<td>6.536</td>
<td>4.177</td>
</tr>
<tr>
<td>Age in 1993</td>
<td>3931</td>
<td>14.249</td>
<td>5.450</td>
<td>549</td>
<td>14.450</td>
<td>5.152</td>
</tr>
<tr>
<td>Male dummy</td>
<td>3931</td>
<td>0.622</td>
<td>0.485</td>
<td>549</td>
<td>0.632</td>
<td>0.483</td>
</tr>
<tr>
<td>Non-Muslim religion</td>
<td>3931</td>
<td>0.106</td>
<td>0.308</td>
<td>549</td>
<td>0.009</td>
<td>0.095</td>
</tr>
<tr>
<td>Urban in 93</td>
<td>3931</td>
<td>0.481</td>
<td>0.500</td>
<td>549</td>
<td>0.288</td>
<td>0.453</td>
</tr>
<tr>
<td>Urban in 07</td>
<td>3931</td>
<td>0.614</td>
<td>0.487</td>
<td>549</td>
<td>0.426</td>
<td>0.495</td>
</tr>
</tbody>
</table>

Table shows summary statistics for individuals in the original 1993 household roster and lived in districts with at least five sub-districts, excluding Sulawesi region.
Result: impact on log earnings 2007

<table>
<thead>
<tr>
<th></th>
<th>Dep. var: Log earnings 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Connected in 1993=1</td>
<td>0.240**</td>
</tr>
<tr>
<td></td>
<td>(0.0552)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>-0.0882</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
</tr>
<tr>
<td>Connected X Golkar win</td>
<td>0.549**</td>
</tr>
<tr>
<td></td>
<td>(0.126)</td>
</tr>
<tr>
<td>Constant</td>
<td>12.14**</td>
</tr>
<tr>
<td></td>
<td>(0.160)</td>
</tr>
<tr>
<td>HH 1993 vars</td>
<td>Yes</td>
</tr>
<tr>
<td>Own educ</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>4469</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.111</td>
</tr>
<tr>
<td>Num. clusters</td>
<td>234</td>
</tr>
</tbody>
</table>

Standard errors clustered at sub-district level.  * p < .1,  ** p < .05,  *** p < .01

Other control vars: Golkar’s sub-district vote share, age, male, religion, urban, and region. The sample includes individuals aged 5-24 in 1993.
Result: impact on log earnings 2007, by age group

<table>
<thead>
<tr>
<th></th>
<th>Dep. var: Log earnings 2007</th>
<th>Older cohort (15-24)</th>
<th>Younger cohort (5-14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Connected in 1993=1</td>
<td>0.364***</td>
<td>0.0701</td>
<td>0.0871</td>
</tr>
<tr>
<td></td>
<td>(0.0843)</td>
<td>(0.0890)</td>
<td>(0.0724)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>-0.0445</td>
<td>-0.0771</td>
<td>-0.139</td>
</tr>
<tr>
<td></td>
<td>(0.198)</td>
<td>(0.208)</td>
<td>(0.122)</td>
</tr>
<tr>
<td>Connected X Golkar win</td>
<td>0.582***</td>
<td>0.385**</td>
<td>0.575***</td>
</tr>
<tr>
<td></td>
<td>(0.169)</td>
<td>(0.184)</td>
<td>(0.202)</td>
</tr>
<tr>
<td>Own educ Yes</td>
<td>12.25***</td>
<td>12.23***</td>
<td>12.29***</td>
</tr>
<tr>
<td></td>
<td>(0.232)</td>
<td>(0.223)</td>
<td>(0.171)</td>
</tr>
<tr>
<td>Observations</td>
<td>2061</td>
<td>2057</td>
<td>2408</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.168</td>
<td>0.237</td>
<td>0.0694</td>
</tr>
<tr>
<td>Num. clusters</td>
<td>232</td>
<td>232</td>
<td>234</td>
</tr>
</tbody>
</table>
Robustness check

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. HH in 1993=1</td>
<td>0.241***</td>
<td>0.0836</td>
<td>0.131**</td>
<td>0.0837</td>
</tr>
<tr>
<td></td>
<td>(0.0651)</td>
<td>(0.0619)</td>
<td>(0.0625)</td>
<td>(0.0610)</td>
</tr>
<tr>
<td>Golkar winner=1</td>
<td>0.0581</td>
<td>-1.372</td>
<td>-0.141</td>
<td>-1.454</td>
</tr>
<tr>
<td></td>
<td>(0.147)</td>
<td>(1.418)</td>
<td>(0.135)</td>
<td>(1.384)</td>
</tr>
<tr>
<td>Prof. HH X Golkar win</td>
<td>-0.332</td>
<td>-0.237</td>
<td>-0.379**</td>
<td>-0.338*</td>
</tr>
<tr>
<td></td>
<td>(0.212)</td>
<td>(0.214)</td>
<td>(0.175)</td>
<td>(0.196)</td>
</tr>
<tr>
<td>Constant</td>
<td>12.23***</td>
<td>9.253***</td>
<td>11.95***</td>
<td>9.922***</td>
</tr>
<tr>
<td></td>
<td>(0.162)</td>
<td>(0.444)</td>
<td>(0.158)</td>
<td>(0.446)</td>
</tr>
<tr>
<td>HH 1993 vars</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Own educ</td>
<td></td>
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<tr>
<td>Observations</td>
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<td>4469</td>
<td>4464</td>
<td>4464</td>
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<tr>
<td>R-squared</td>
<td>0.104</td>
<td>0.151</td>
<td>0.168</td>
<td>0.183</td>
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<tr>
<td>Num. clusters</td>
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</table>

Standard errors clustered at sub-district level in parenthesis.

* p < .1, ** p < .05, *** p < .01
Summary of results

- Being connected to Golkar had large benefits in areas where Golkar maintained control of local politics
- Thus, large effect of political connections in the labor market
- Evidence of large segmentation in the labor market
- Could point to another source of upward bias in estimates for returns to education in developing countries besides ability
Thank you!
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