Table 1: Earnings Function Estimates, using Sample up to 64-year-old, Variables of Occupation Tenure are not Controlled.

| | OLS | | | IV | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Employer tenure | 0.0142*** | 0.0120*** | 0.0157* | 0.0029 | 0.0038 | 0.0108 |
| | (0.0019) | (0.0044) | (0.0084) | (0.0057) | (0.0091) | (0.0142) |
| Emp.ten.$^2$ × 100 | -0.0135*** | 0.0031 | -0.0398 | -0.0069 | -0.0120 | -0.1016 |
| | (0.0049) | (0.0260) | (0.0832) | (0.0150) | (0.0583) | (0.1489) |
| Emp.ten.$^3$ × 100 | | -0.0003 | 0.0014 | | 0.0000 | 0.0038 |
| | | (0.0004) | (0.0030) | | (0.0010) | (0.0057) |
| Emp.ten.$^4$ × 1000 | | | -0.0000 | | | -0.0000 |
| | | | (0.0000) | | | (0.0000) |
| Old job | 0.0760*** | 0.0880*** | 0.0786** | 0.0531 | 0.0561 | 0.0451 |
| | (0.0267) | (0.0293) | (0.0329) | (0.0437) | (0.0451) | (0.0482) |
| Total experience | 0.0209*** | 0.0011 | 0.0287** | 0.0428*** | 0.0143 | 0.0501* |
| | (0.0025) | (0.0070) | (0.0145) | (0.0079) | (0.0160) | (0.0280) |
| Experience$^2$ | -0.0004*** | 0.0005* | -0.0016 | -0.0007*** | 0.0006 | -0.0022 |
| | (0.0000) | (0.0003) | (0.0010) | (0.0001) | (0.0007) | (0.0020) |
| Exp.$^3$ × 100 | | -0.0012*** | 0.0050* | | -0.0017* | 0.0064 |
| | | (0.0004) | (0.0030) | | (0.0009) | (0.0059) |
| Exp.$^4$ × 10000 | | | -0.0000** | | | -0.0000 |
| | | | (0.0000) | | | (0.0000) |
| Observations | 8601 | 8601 | 8601 | 8601 | 8601 | 8601 |

Notes: Robust standard errors are in parentheses.
$^*$ , $^{**}$ and $^{***}$ Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

- OLS: 2 次近似ではテニュアも労働経験もきれいな凸型の関数。係数も有意 OJ ダミーは以前より小さくなったけど 1 番係数大きくて有意。3 次 4 次と増やすと OJ ダミー以外星が消えていく
- IV: ほぼすべての係数が有意ではない。2 次の労働経験のみに星がつく。係数だけで見ても符号が安定しない。
- グラフでリターンを見ても IV はほぼ横ばいで有意に正にもならない
- 職業のテニュアは入れても入れなくてもほぼ結果は変わらない

- その他のテニュアの年数区間をコントロールしたうえでのその年数区間の上昇率？
- OLS: 0-¿1 の上昇率は非有意で係数の値も小さい。2$\tilde{5}$ 年で上昇率が上がってその後はテニュアとともに下降するけど有意
- IV: テニュアとともに係数は下降気味だけど 25$\tilde{3}$0 年で上昇している。25 年以降以外非有意。

Table 2: Earnings Function Estimates, using Sample up to 64-year-old, including Non-regular Workers and Specialists, Variables c
Occupation Tenure are Controlled.

| | OLS | | | IV | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Employer tenure | 0.0130*** | 0.0090* | 0.0080 | 0.0037 | 0.0071 | 0.0097 |
| | (0.0021) | (0.0048) | (0.0090) | (0.0060) | (0.0099) | (0.0154) |
| Emp.ten.$^2$ × 100 | -0.0115** | 0.0177 | 0.0267 | -0.0109 | -0.0303 | -0.0592 |
| | (0.0057) | (0.0293) | (0.0881) | (0.0164) | (0.0629) | (0.1660) |
| Emp.ten.$^3$ × 100 | | -0.0005 | -0.0004 | | 0.0002 | 0.0013 |
| | | (0.0005) | (0.0031) | | (0.0010) | (0.0066) |
| Emp.ten.$^4$ × 1000 | | | -0.0000 | | | -0.0000 |
| | | | (0.0000) | | | (0.0000) |
| Old job | 0.0858*** | 0.0986*** | 0.0929*** | 0.0556 | 0.0522 | 0.0471 |
| | (0.0277) | (0.0306) | (0.0342) | (0.0445) | (0.0461) | (0.0492) |
| Occupation tenure | 0.0020 | 0.0059* | 0.0138*** | -0.0053 | 0.0007 | 0.0023 |
| | (0.0016) | (0.0032) | (0.0050) | (0.0043) | (0.0070) | (0.0113) |
| Occ.ten.$^2$ × 100 | -0.0039 | -0.0314 | -0.1202*** | 0.0159 | -0.0382 | -0.0706 |
| | (0.0049) | (0.0206) | (0.0463) | (0.0137) | (0.0528) | (0.1594) |
| Occ.ten.$^3$ × 100 | | 0.0004 | 0.0033** | | 0.0010 | 0.0027 |
| | | (0.0003) | (0.0013) | | (0.0010) | (0.0067) |
| Occ.ten.$^4$ × 10000 | | | -0.0026** | | | -0.0023 |
| | | | (0.0011) | | | (0.0085) |
| Total experience | 0.0221*** | 0.0027 | 0.0364** | 0.0446*** | 0.0163 | 0.0549* |
| | (0.0026) | (0.0075) | (0.0160) | (0.0082) | (0.0167) | (0.0295) |
| Experience$^2$ | -0.0004*** | 0.0005 | -0.0020* | -0.0008*** | 0.0006 | -0.0025 |
| | (0.0001) | (0.0003) | (0.0011) | (0.0001) | (0.0007) | (0.0021) |
| Exp.$^3$ × 100 | | -0.0011*** | 0.0062* | | -0.0017* | 0.0072 |
| | | (0.0004) | (0.0032) | | (0.0009) | (0.0061) |
| Exp.$^4$ × 10000 | | | -0.0000** | | | -0.0000 |
| | | | (0.0000) | | | (0.0000) |
| Observations | 8463 | 8463 | 8463 | 8463 | 8463 | 8463 |

Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummie
a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficient
of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

Table 3: Earnings Function Estimates, using Sample up to 64-year-old, including Non-regular Workers and Specialists.

| | OLS | | IV | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Employer tenure | 0.0142*** | 0.0130*** | 0.0029 | 0.0037 |
| | (0.0019) | (0.0021) | (0.0057) | (0.0060) |
| Emp.ten.$^2$ $\times$ 100 | -0.0135*** | -0.0115** | -0.0069 | -0.0109 |
| | (0.0049) | (0.0057) | (0.0150) | (0.0164) |
| Old job | 0.0760*** | 0.0858*** | 0.0531 | 0.0556 |
| | (0.0267) | (0.0277) | (0.0437) | (0.0445) |
| Total experience | 0.0209*** | 0.0221*** | 0.0428*** | 0.0446*** |
| | (0.0025) | (0.0026) | (0.0079) | (0.0082) |
| Experience$^2$ | -0.0004*** | -0.0004*** | -0.0007*** | -0.0008*** |
| | (0.0000) | (0.0001) | (0.0001) | (0.0001) |
| Occupation Tenure | No | Yes | No | Yes |
| Observations | 8601 | 8463 | 8601 | 8463 |

Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

Table 4: Estimated Returns to Employer Tenure, using Sample up to 64-year-old, including Non-regular Workers and Specialists.

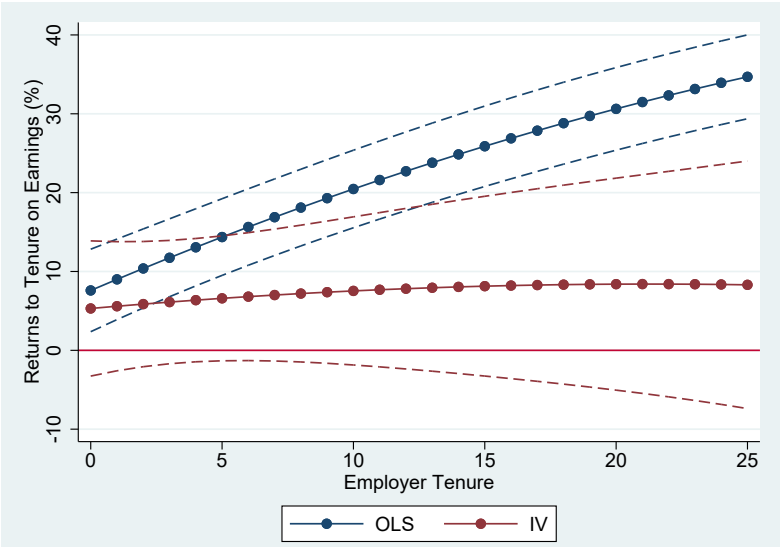
| | AS's IV | | | | 2SFD |
|---|---|---|---|---|---|
| | OLS | | IV | | |
| | (1) | (2) | (3) | (4) | (5) |
| 2 Years | 0.1039*** | 0.1113*** | 0.0586 | 0.0626 | .0482 |
| | (0.0256) | (0.0265) | (0.0405) | (0.0411) | (.0413) |
| 5 Years | 0.1437*** | 0.1477*** | 0.0659 | 0.0715* | .1200 |
| | (0.0248) | (0.0258) | (0.0404) | (0.0414) | (.1030) |
| 10 Years | 0.2046*** | 0.2040*** | 0.0754 | 0.0820* | .2385 |
| | (0.0251) | (0.0264) | (0.0479) | (0.0496) | (.2052) |
| 15 Years | 0.2588*** | 0.2545*** | 0.0814 | 0.0869 | .3554 |
| | (0.0260) | (0.0276) | (0.0582) | (0.0600) | (.3077) |
| 20 Years | 0.3062*** | 0.2992*** | 0.0840 | 0.0865 | .4707 |
| | (0.0267) | (0.0285) | (0.0686) | (0.0699) | (.4118) |
| 25 Years | 0.3469*** | 0.3383*** | 0.0831 | 0.0806 | .5846 |
| | (0.0271) | (0.0289) | (0.0801) | (0.0808) | (.5183) |
| Occupation Tenure | No | Yes | No | Yes | No |
| Observations | 8463 | 8463 | 8463 | 8463 | 8794 |

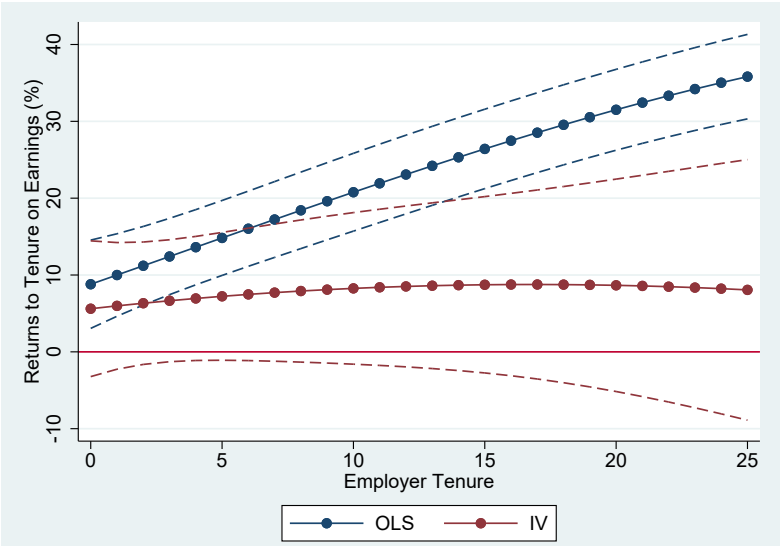
Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

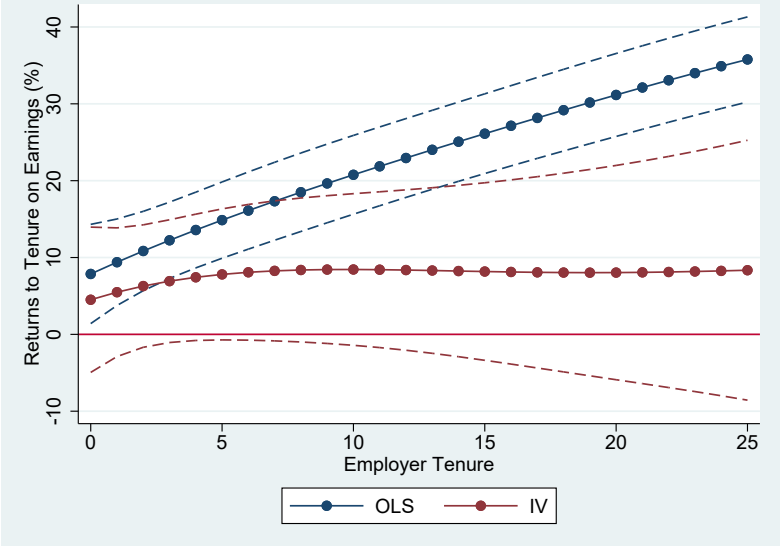
Table 5: Estimated Returns to Employer Tenure, Employer Tenure is Treated as Dummy Variables

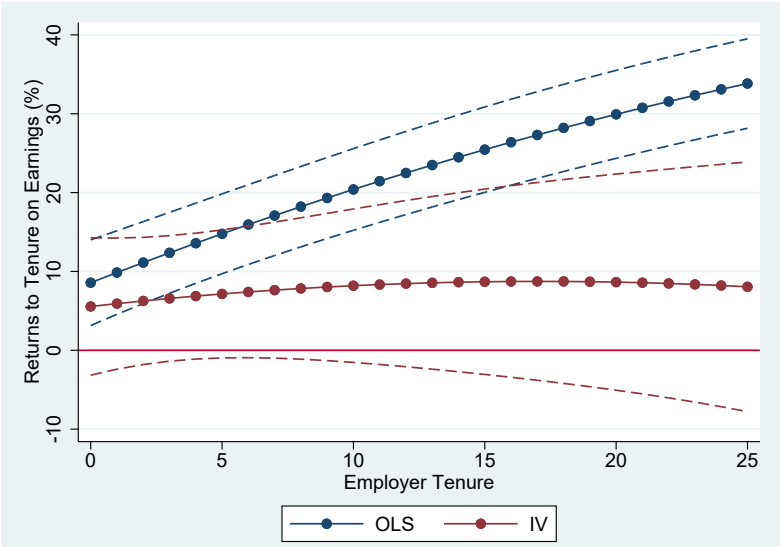
| | OLS | AS's IV |
|---|---|---|
| | (1) | (2) |
| $T_{ij} \geq 1$ | -0.0076 | 0.0207 |
| | (0.0335) | (0.0422) |
| $T_{ij} \geq 2$ | 0.0567** | 0.0060 |
| | (0.0269) | (0.0305) |
| $T_{ij} \geq 5$ | 0.0401** | 0.0395 |
| | (0.0183) | (0.0255) |
| $T_{ij} \geq 10$ | 0.0891*** | 0.0080 |
| | (0.0183) | (0.0266) |
| $T_{ij} \geq 15$ | 0.0216 | -0.0013 |
| | (0.0192) | (0.0299) |
| $T_{ij} \geq 20$ | 0.0104 | 0.0008 |
| | (0.0196) | (0.0295) |
| $T_{ij} \geq 25$ | 0.0919*** | 0.0458 |
| | (0.0235) | (0.0344) |
| $T_{ij} \geq 30$ | -0.0289 | 0.0371 |
| | (0.0217) | (0.0371) |
| Total experience | 0.0202*** | 0.0434*** |
| | (0.0024) | (0.0072) |
| Experience$^2$ | -0.0003*** | -0.0008*** |
| | (0.0000) | (0.0001) |
| Observations | 9437 | 9437 |

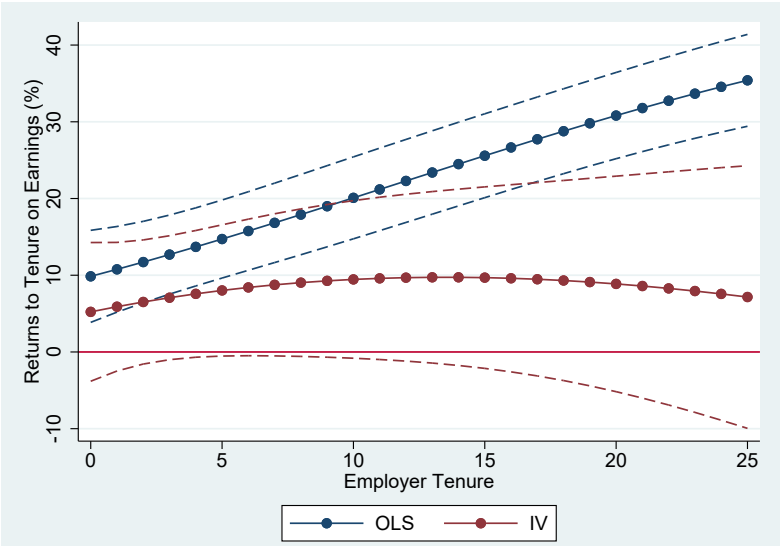
Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

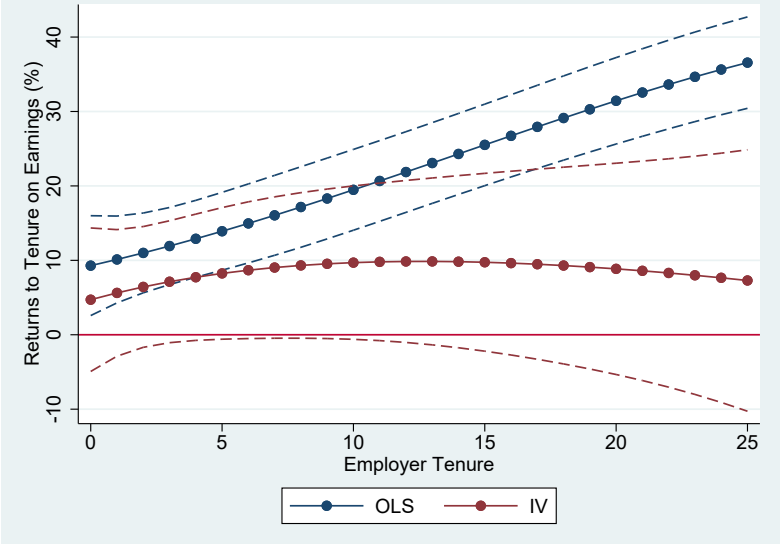

Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV


Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV


Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV


Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV


Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV


Returns to Tenure on Earnings (%)
-10
0
10
20
30
40
0
5
10
15
20
25
Employer Tenure
OLS
IV

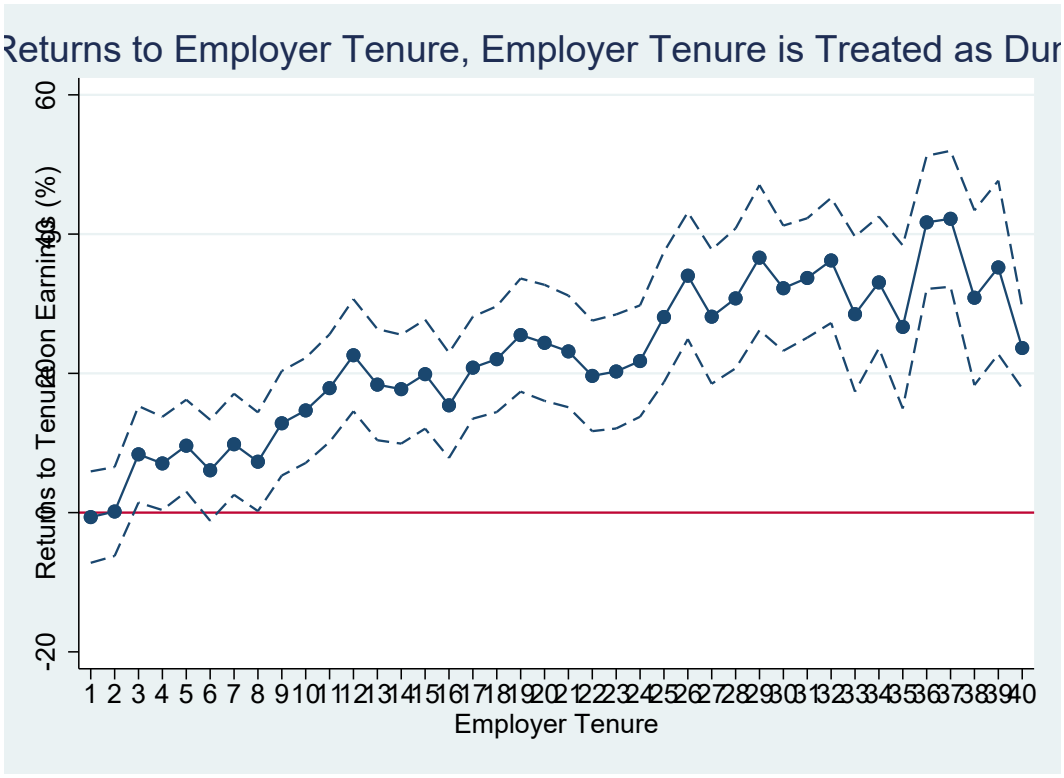

Returns to Employer Tenure, Employer Tenure is Treated as Dur
Returns to Tenure on Earnings (%)
-20
0
20
40
60
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Employer Tenure

Table 6: Earnings Function Estimates, using Various Subsamples.

| | Under 59-year-old | | Large Firms ($\geq 500$) | | Small Firms ($< 500$) | | Non-Professional | | Regular Employee | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Employer tenure | 0.0132*** | 0.0016 | 0.0195*** | 0.0068 | 0.0127*** | 0.0029 | 0.0171*** | 0.0012 | 0.0138*** | 0.0025 |
| | (0.0021) | (0.0064) | (0.0036) | (0.0100) | (0.0024) | (0.0074) | (0.0020) | (0.0064) | (0.0021) | (0.0062) |
| Emp.ten.$^2 \times 100$ | -0.0080 | 0.0037 | -0.0228*** | -0.0136 | -0.0130** | -0.0024 | -0.0200*** | -0.0056 | -0.0111** | -0.0072 |
| | (0.0058) | (0.0179) | (0.0086) | (0.0258) | (0.0064) | (0.0205) | (0.0052) | (0.0162) | (0.0056) | (0.0166) |
| Old job | 0.0899*** | 0.0482 | 0.0363 | 0.0447 | 0.0978*** | 0.0497 | 0.0546* | 0.0399 | 0.0883*** | 0.0549 |
| | (0.0300) | (0.0501) | (0.0549) | (0.0834) | (0.0311) | (0.0530) | (0.0291) | (0.0502) | (0.0340) | (0.0578) |
| Total experience | 0.0157*** | 0.0358*** | 0.0197*** | 0.0533*** | 0.0206*** | 0.0353*** | 0.0177*** | 0.0434*** | 0.0213*** | 0.0398*** |
| | (0.0030) | (0.0090) | (0.0044) | (0.0140) | (0.0032) | (0.0108) | (0.0028) | (0.0087) | (0.0030) | (0.0087) |
| Experience$^2$ | -0.0002*** | -0.0006*** | -0.0003*** | -0.0009*** | -0.0004*** | -0.0007*** | -0.0003*** | -0.0007*** | -0.0004*** | -0.0006*** |
| | (0.0001) | (0.0002) | (0.0001) | (0.0003) | (0.0001) | (0.0002) | (0.0001) | (0.0002) | (0.0001) | (0.0002) |
| Observations | 7754 | 7754 | 3325 | 3325 | 5276 | 5276 | 7337 | 7337 | 7708 | 7708 |

Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

Table 7: Estimated Returns to Employer Tenure, using Various Subsamples.

| | Under 59-year-old | | Large Firms ($\geq 500$) | | Small Firms ($< 500$) | | Non-Professional | | Regular Employee | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2 Years | 0.1160*** | 0.0515 | 0.0743 | 0.0578 | 0.1226*** | 0.0554 | 0.0881*** | 0.0420 | 0.1154*** | 0.0595 |
| | (0.0288) | (0.0466) | (0.0533) | (0.0805) | (0.0296) | (0.0488) | (0.0279) | (0.0465) | (0.0327) | (0.0542) |
| 5 Years | 0.1539*** | 0.0570 | 0.1279** | 0.0753 | 0.1578*** | 0.0634 | 0.1353*** | 0.0443 | 0.1545*** | 0.0654 |
| | (0.0279) | (0.0465) | (0.0526) | (0.0833) | (0.0286) | (0.0496) | (0.0271) | (0.0464) | (0.0316) | (0.0532) |
| 10 Years | 0.2139*** | 0.0677 | 0.2081*** | 0.0991 | 0.2113*** | 0.0760 | 0.2060*** | 0.0459 | 0.2152*** | 0.0723 |
| | (0.0282) | (0.0549) | (0.0538) | (0.0972) | (0.0288) | (0.0629) | (0.0275) | (0.0554) | (0.0315) | (0.0590) |
| 15 Years | 0.2699*** | 0.0802 | 0.2769*** | 0.1161 | 0.2584*** | 0.0873 | 0.2667*** | 0.0447 | 0.2704*** | 0.0756 |
| | (0.0293) | (0.0669) | (0.0561) | (0.1121) | (0.0298) | (0.0818) | (0.0284) | (0.0678) | (0.0321) | (0.0684) |
| 20 Years | 0.3220*** | 0.0945 | 0.3342*** | 0.1264 | 0.2989*** | 0.0974 | 0.3174*** | 0.0406 | 0.3200*** | 0.0752 |
| | (0.0301) | (0.0803) | (0.0579) | (0.1239) | (0.0305) | (0.1034) | (0.0292) | (0.0807) | (0.0326) | (0.0791) |
| 25 Years | 0.3700*** | 0.1107 | 0.3802*** | 0.1299 | 0.3329*** | 0.1064 | 0.3582*** | 0.0338 | 0.3641*** | 0.0713 |
| | (0.0308) | (0.0962) | (0.0589) | (0.1339) | (0.0308) | (0.1287) | (0.0296) | (0.0945) | (0.0329) | (0.0919) |
| Observations | 7754 | 7754 | 3325 | 3325 | 5276 | 5276 | 7337 | 7337 | 7708 | 7708 |

Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.

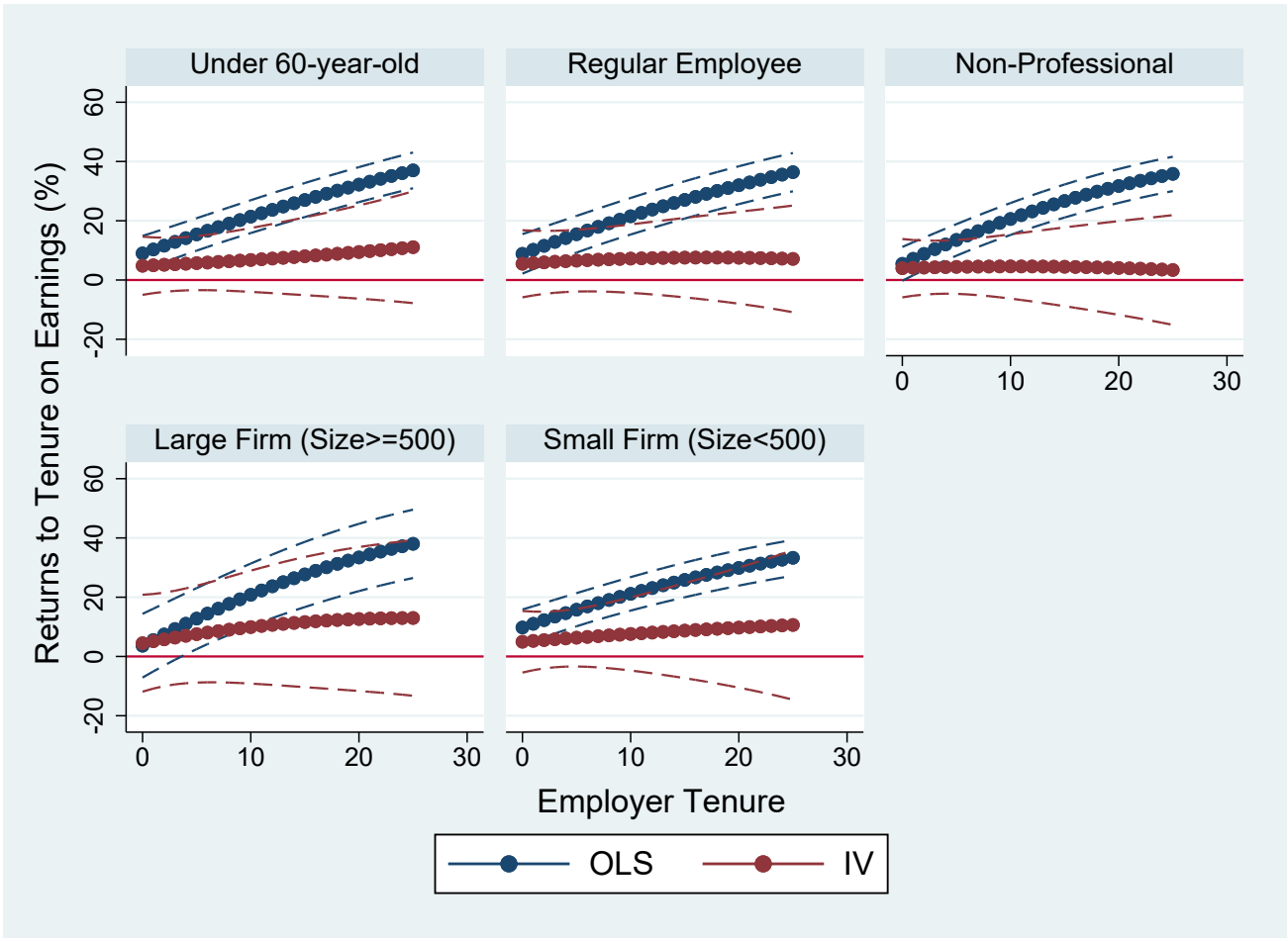

Under 60-year-old
Regular Employee
Non-Professional
Large Firm (Size>=500)
Small Firm (Size<500)
Returns to Tenure on Earnings (%)
-20
0
20
40
60
0
10
20
30
Employer Tenure
OLS
IV

Table 8: Estimation Results, using the Method of 2SFD Estimation.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| **1st stage** | | | | |
| Constant | 0.0488** | 0.0547** | 0.0575* | 0.1250** |
| | (0.0199) | (0.0234) | (0.0340) | (0.0537) |
| Emp.ten.$^2 \times 100$ | | -0.0031 | 0.1356 | -0.1841 |
| | | (0.0259) | (0.0908) | (0.2029) |
| Emp.ten.$^3 \times 1000$ | | | -0.0256 | 0.1194 |
| | | | (0.0162) | (0.0823) |
| Emp.ten.$^4 \times 10000$ | | | | -0.0188* |
| | | | | (0.0103) |
| Experience$^2 \times 100$ | | -0.0103 | -0.1123 | -0.4653 |
| | | (0.0274) | (0.1314) | (0.3785) |
| Experience$^3 \times 1000$ | | | 0.0150 | 0.1090 |
| | | | (0.0169) | (0.1088) |
| Experience$^4 \times 10000$ | | | | -0.0085 |
| | | | | (0.0107) |
| **2nd stage** | | | | |
| Total Experience | .0255*** | .0305*** | .0504*** | .1003*** |
| | (.0010) | (.0010) | (.0010) | (.0010) |
| Employer Tenure | .0234 | .0242 | .0072 | .0247 |
| | (.0165) | (.0207) | (.0345) | (.0613) |
| Observations | | | | |
| 1st stage | 5582 | 5579 | 5579 | 5579 |
| 2nd stage | 8797 | 8794 | 8794 | 8794 |

Notes: Robust standard errors are in parentheses.
* , ** and *** Denote statistical significance at the 10%, 5% and 1% level, respectively.
The dependent variable is log real hourly wages. Other covariates include an intercept, education dummies, occupation and industry dummies, a union member dummy, a marital status dummy, firm size dummies, and regular employee dummy. Columns (1) and (2) denote the coefficients of earnings function (**??**) which is estimated by the OLS, and columns (3) and (4) denote those by AS's IV method.