Accounting for the Native-Immigrants Earnings Differentials and Ethnicity Assimilation in Taiwan

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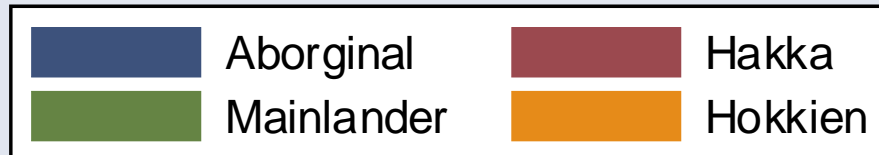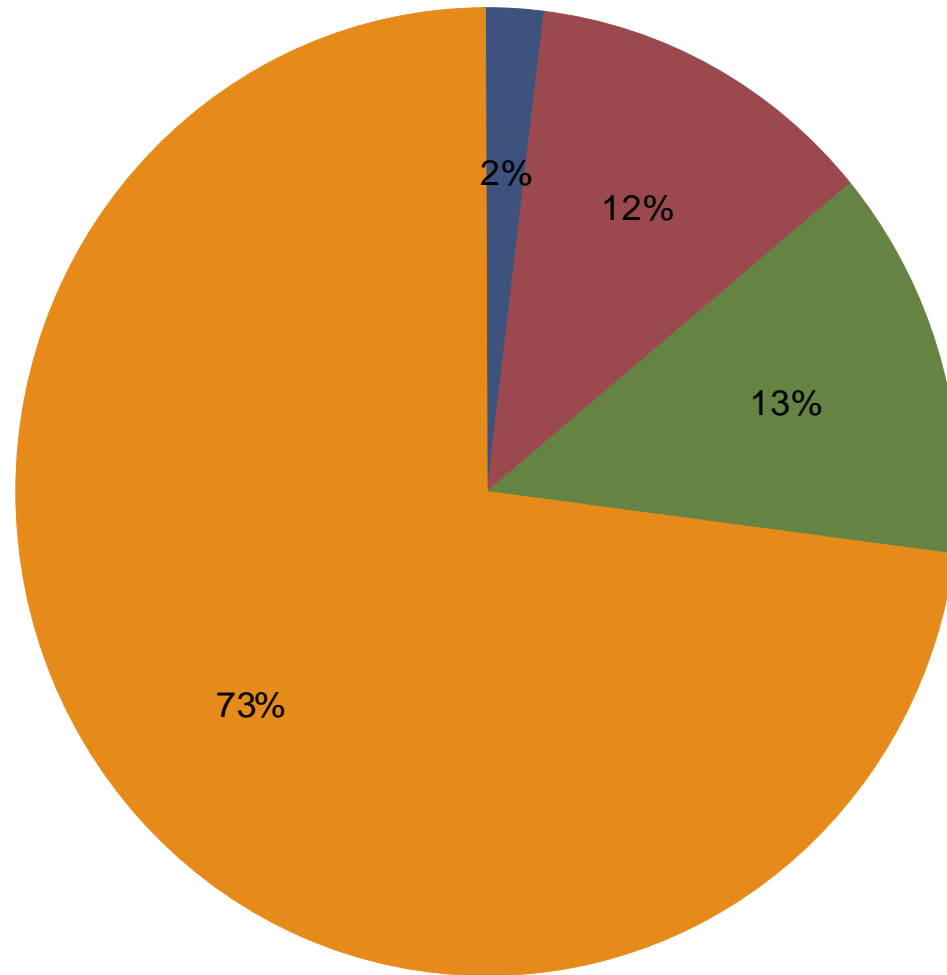Department of Economics, National Taipei University
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Ethnicity Percentage Distribution in Taiwan

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I. Introductions and Facts

The Ethnic Compositions in Taiwan:

♦ Immigrants (Mainland Chinese) after 1949.
  In 2004,

♦ immigrants and 2nd-generation: 13%

♦ Hakka: 12%

♦ Hokkien: 73%.

♦ Hokkien: accounts for more than 83% of natives.

Facts

- Striking feature: immigrants have much higher earnings than natives, more than 30% more.

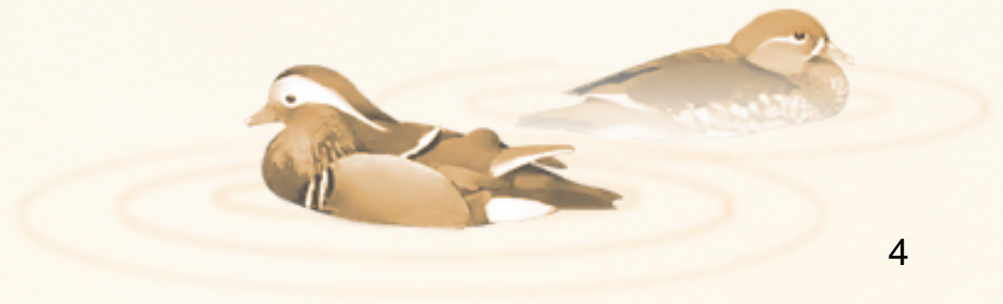- Indeed, immigrants also have earnings higher than natives over a life cycle (see Figure 1).

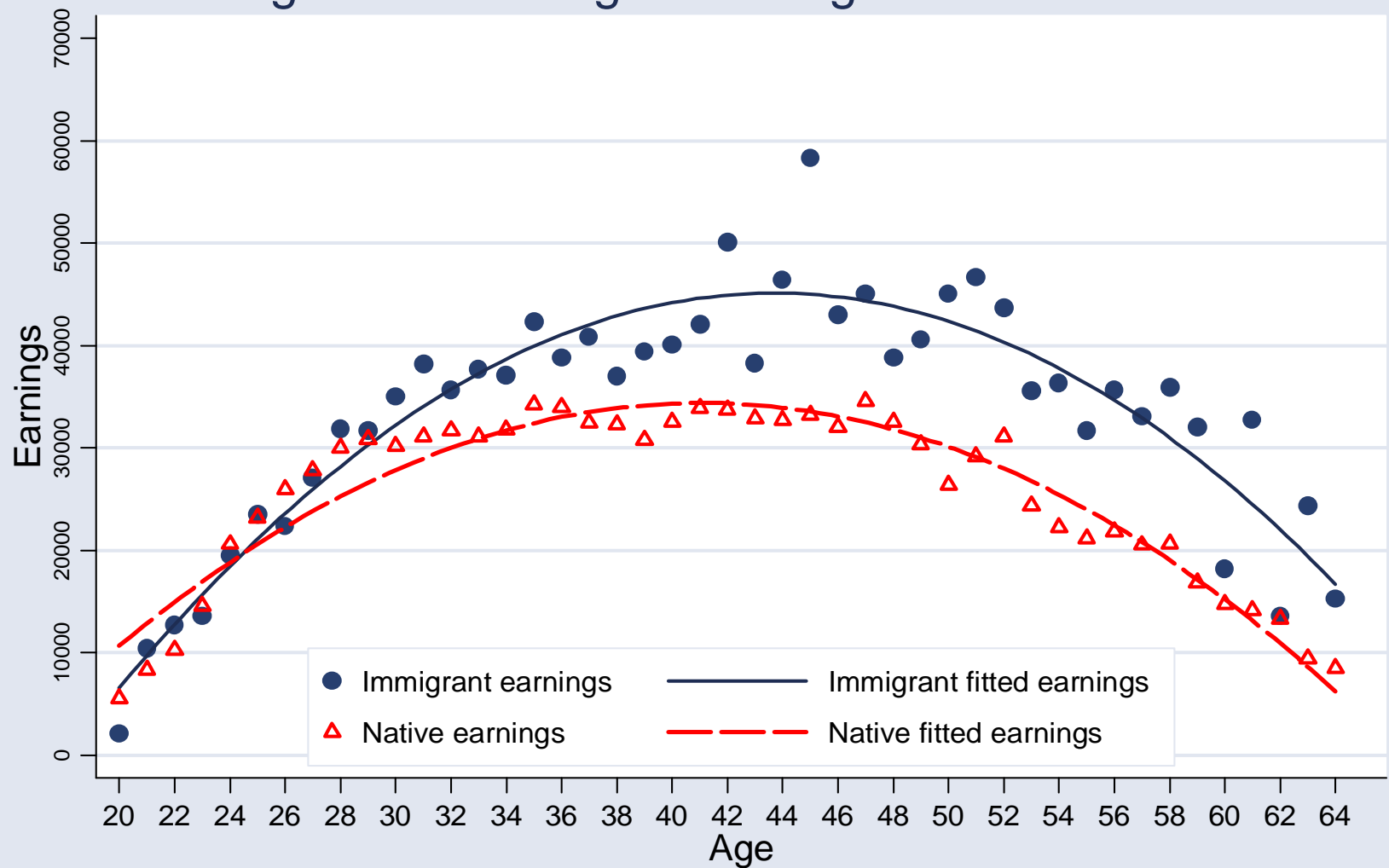Figure 1 Earnings of Immigrants and Natives

Source: Taiwan Social Change Sruvey 1992-2006.

II. Motivations and Purpose of Study: Motivations

Three aspects different from those in N. America and Europe:

1. Immigrants in N. America and Europe are mainly motivated by **economic incentives**,

immigrants in Taiwan are **political refugees** that escaped from the ruling of the Chinese communists.
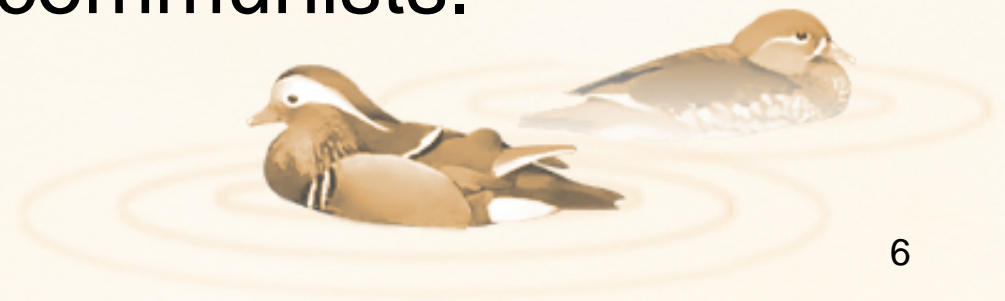
II. Motivations and Purpose of Study： Motivations

- 2. Natives and immigrants in N. America and Europe are very different in the ethnicity.

- Though different in terms of spoken languages, natives and immigrants in Taiwan are all Chinese that shared similar culture roots.

II. Motivations and Purpose of Study： Motivations

3. Natives have higher earnings in North America and Europe, immigrants in Taiwan obtain much higher earnings.
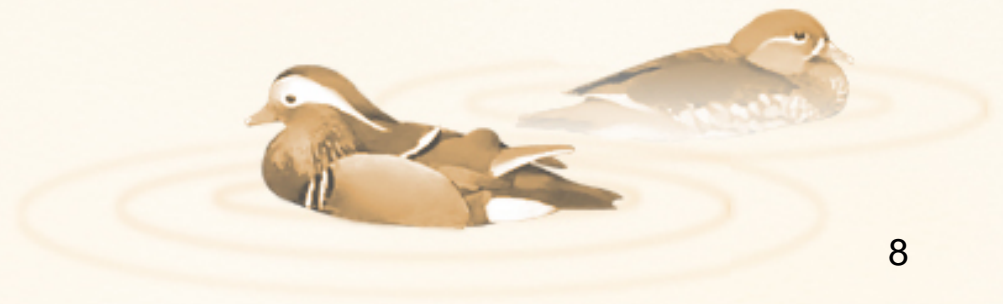
II. Motivations and Purpose of Study: Purposes

■ An important and interesting issue but was neglected in existing literature:

Why did immigrants make so much more in earnings than natives in Taiwan?
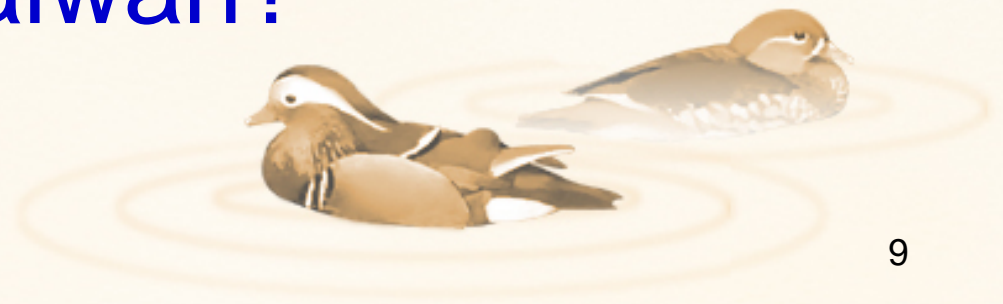
II. Motivations and Purpose of Study: Purposes

- The purpose of this paper attempts to offer an explanation of such an interesting observation.

- Attentions are paid to differences in human capital and occupations between immigrants and natives.--- We study the role of educational attainments, occupational choices, the language speaking proficiency, and mother's ethnicity in accounting for such a large earnings differential.

III. Literature

. First-generation Immigrants:

Chiswick(1978, 1986); Duleep and Reget(1996, 1997);   La Londe and Topel(1992, 1997)

These studies generally concluded that, everything else being equal, there is no significant evidence of a declining earnings profile over successive cohorts of immigrants as compared to natives.
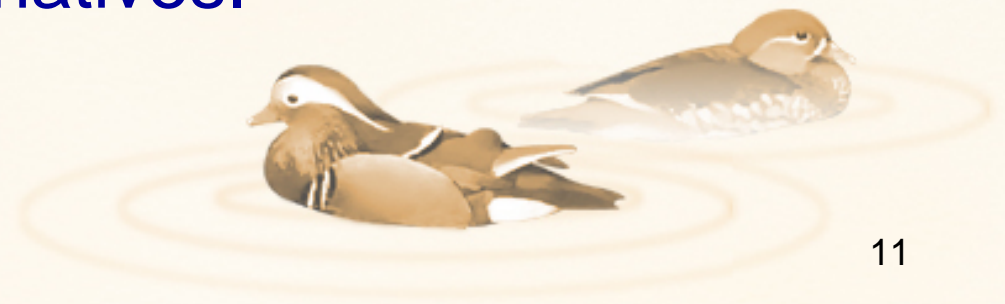
III. Literature

2. Second-generation Immigrants:

<u>Educational attainment</u> : **U.S. Census data** -Chiswick(1988);

Germany data -Gang and Zimmerman(2000); Riphahn(2003); van Ours and Veenman(2003); Zimmermann(1995);

Taiwan data - Tsay(2006);

van Ours and Veenman(2003) and Tsay(2006) found that it exists a high intergenerational economic mobility between first-generation and second-generation immigrants
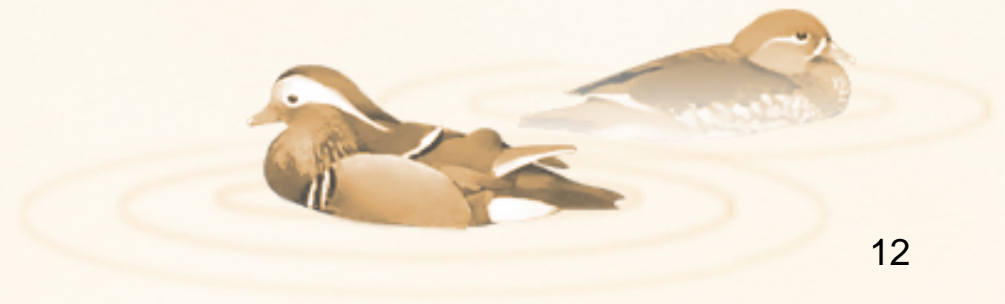
III. Literature

Labor market performance: Boyd and Grieco(1998); Behrenz, Hammarstedt and Mansson(2007); Carliner(1980); Chiswick(1977); Chiswick and Miller(1985); Maani(1994); Mansson and Ekberg (2000); Rooth and Ekberg(2003); Palameta(2007); Vilhelmsson (2000)

U.S. Census- Carliner(1980); Chiswick(1977);
It has no significant evidence for earnings gap between second-generation immigrants and their native counterparts was shrunk.

III. Literature

Swedish data- Mansson and Ekberg (2000); Rooth and Ekberg(2003); Vilhelmsson (2000)

It is more likely for those second-generation immigrants born prior to 1970 to have a better labor market position compared to their younger counterparts.

Children of immigrants migrated from non-European countries shared less common backgrounds with native Swedes, and hence it is more likely for them to be unemployed and to have lower earnings relative to native Swedes,

Rooth and Ekberg(2003) uncovered that second-generation immigrants with one native-born parent perform better than those with two foreign-born Parents.

IV. Methodology and Source of Data

- Two Stages:
- The first-stage:

     Heckit two-step procedures

     1. Labor Force Participations

      2. Selectivity-corrected earnings

      model

- The Second-stage:

     Oaxaca-Blinder decomposition analysis
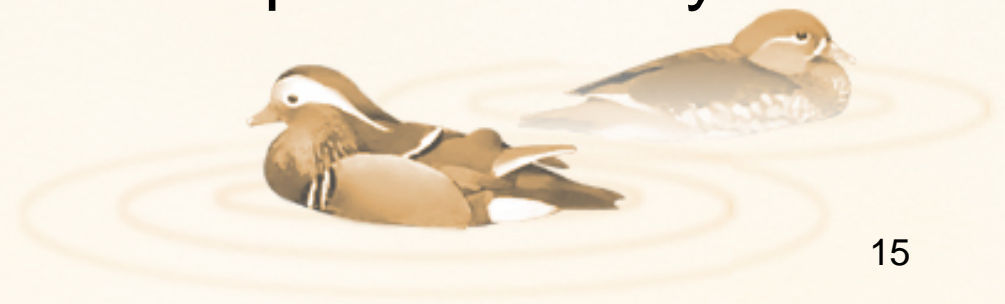
IV. Methodology and Source of Data

The first-stage:

🌸 Labor Force Participation

Let *LFP**, a latent variable, stand for supply for market work. *LFP* is a binary variable indicating an individual *i* participation labor force if *LFP* is equal to 1, and set to zero otherwise.

$LFP_i = 1$, if $LFP_i^* > 0$ an individual *i* supplies labor for the market work.

$LFP_i = 0$, if $LFP_i^* \leq 0$ otherwise.

IV. Methodology and Source of Data

The first-stage:

- Participation Probit and Earnings model

$$\text{P}(LFP_{ij} = 1) = \text{P}(LFP_{ij}^* > 0 \mid \text{X}_i) = \beta'_{1j} X_i + \nu_j, \quad j = Ho, Ma \tag{1}$$

$$lnW_{ij} = \alpha'_j X_{1i} + \varepsilon_{ij}, \quad j = Ma, Ho, \tag{2}$$

IV. Methodology and Source of Data

The first-stage:

•Identification

Some variables used in the estimation of participation probit model（*X*）that are not included in the estimation of the earnings regressions (*X1*).

•Selectivity-corrected Earnings model

$$lnW_{ij} = \alpha'_j X_{1i} + \gamma'_j \hat{\lambda}_{ij} + \eta_{ij}, \quad j=Ma, \ Ho, \qquad (3)$$

The second-stage:

🌺 Decomposition Analysis:

Re-parameterization:

$$\beta_M = [\alpha'_{Ma}, \gamma'_{Ma}], \quad \beta_H = [\alpha'_{Ho}, \gamma'_{Ho}], \quad X_M = [X_1, \hat{\lambda}_{Ma}] \quad X_H = [X_1, \hat{\lambda}_{Ho}].$$

1. Immigrants as a reference group

$$\overline{\ln \hat{W}_{Ma}} - \overline{\ln \hat{W}_{Ho}} = \hat{\beta}_M (\overline{X}_M - \overline{X}_H) + \overline{X}_H (\hat{\beta}_M - \hat{\beta}_H). \tag{4}$$

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2. Natives as a reference group

$$\overline{\ln \hat{W}_{Ma}} - \overline{\ln \hat{W}_{Ho}} = \hat{\beta}_H (\bar{X}_M - \bar{X}_H) + \bar{X}_M (\hat{\beta}_M - \hat{\beta}_H). \tag{5}$$

Source of Data

- This study employs the *Taiwan Social Change Survey* (TSCS), which is a nation-wide survey designed to trace the long-term trends of profound social changes in Taiwan in years before and after the lift of martial law in 1987.

- The data set before 1992 contains no information regarding language speaking. In order to capture the changes in the population of different ethnic groups and the transition of Taiwan society, in this study we use 13 year cross-sectional data sets which starts from 1992 to 2006 except for 1994 and 1999.

- In our study, we select an individual whose age is between 20 to 64 years old..

Using Hokkien as representatives of natives as it accounts for more than 83% of natives in 2004.
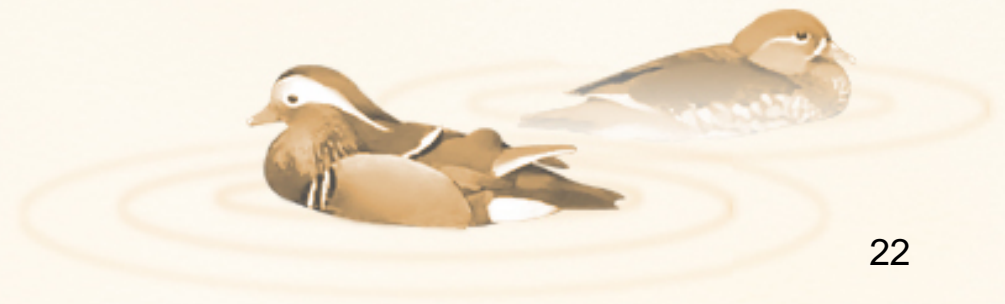
V. Empirical Results

- Heckit two-step Estimations are applied separately to:

  Total sample (immigrants and natives)
  Immigrants sample
  Natives sample

For each sample, we have 4 model specifications to explore the important effects of interesting variables.

Empirical Results

- Table 1-1, 2-1, 3-1 LFPR regressions for total sample, Immigrants, and Natives

- Table 1-2, 2-2 and 3-2 Selectivity-corrected earnings regressions for total sample, immigrants, and natives

- Table 4 and 5 Earnings differentials decomposition results

Appendix Table 2   Variable Statistics

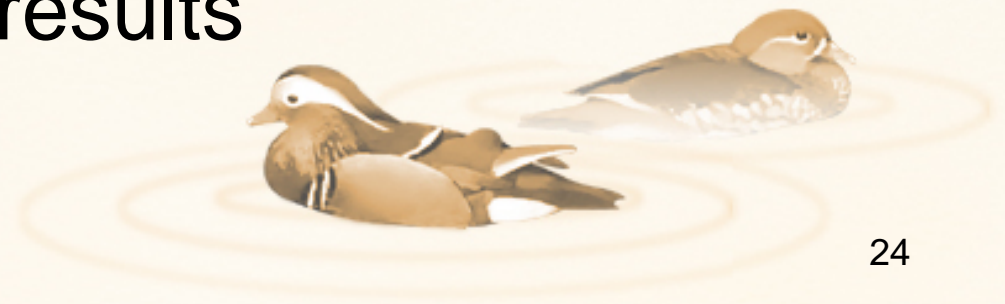| Variable [1]	Total sample		Natives (Hokkien)		Immigrants	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Natives (Hokkien)	0.8814	0.3233	--	--	--	--
Mainlander	0.1186	0.3233	--	--	--	--
Male	0.4943	0.5000	0.4915	0.4999	0.5148	0.4999
Female	0.5057	0.5000	0.5085	0.4999	0.4852	0.4999
Married	0.7211	0.4484	0.7258	0.4461	0.6868	0.4639
Labor force participation rate	0.7453	0.4357	0.7402	0.4385	0.7830	0.4123
Earnings (NT dollars)	28284.3100	32912.8500	27236.6200	32281.1600	36073.5000	36345.1500
Own education						
Not educated	0.0526	0.2232	0.0581	0.2339	0.0119	0.1085
Primary	0.1755	0.3804	0.1931	0.3948	0.0447	0.2068
Middle school	0.1722	0.3776	0.1838	0.3873	0.0857	0.2800
High school and above	0.5991	0.4901	0.5644	0.4958	0.8568	0.3504
Mandarin	0.5847	0.4928	0.5445	0.4980	0.8841	0.3202
Father Education						
F_Not educated	0.2674	0.4426	0.2870	0.4524	0.1217	0.3270
F_Primary	0.3797	0.4853	0.4063	0.4911	0.1822	0.3860
F_Middle school	0.1517	0.3588	0.1504	0.3575	0.1615	0.3681
F_High school and above	0.1759	0.3807	0.1324	0.3389	0.4994	0.5001

Appendix Table 2　Variable Statistics

Variable[1]	Total sample		Natives (Hokkien)		Immigrants	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Native Mothers						
Immigrants	0.0528	0.2236	--	--	0.4451	0.4970
Natives	0.8363	0.3700	0.9488	0.2204	--	--
Public	0.1061	0.3080	0.0944	0.2924	0.1929	0.3946
Occupation distribution						
Legislators, senior officials and managers	0.0373	0.1894	0.0349	0.1834	0.0552	0.2284
Professionals and para-professionals	0.1352	0.3419	0.1242	0.3298	0.2170	0.4123
Technicians and related Workers	0.0456	0.2086	0.0426	0.2020	0.0677	0.2513
Clerical workers, service workers, and salespersons	0.1959	0.3969	0.1911	0.3932	0.2310	0.4215
Mechanical operators and Assemblers	0.1828	0.3865	0.1912	0.3933	0.1203	0.3253
Unskilled workers and laborers	0.0533	0.2246	0.0561	0.2301	0.0322	0.1767
Agriculture, animal husbandry, forestry and fishing Workers	0.0450	0.2074	0.0504	0.2189	0.0046	0.0680
Reside in Taipei<age 15	0.0931	0.2906	0.0790	0.2698	0.2002	0.4002
Spouse in LF	0.5729	0.4947	0.5744	0.4944	0.5613	0.4963
Non labor income (NT dollars)	25645.7000	47214.2500	25564.2400	47710.3900	26244.5500	43395.3600
Sample size (number)	29032		25590		3442	

Note: 1. All units are expressed in percentages unless otherwise noted in parentheses.

Table 1-2 Heckit Two-Stage Estimation on Earnings: Full Sample

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Male	0.3932*** (0.0111)	0.3628*** (0.0104)	0.4059*** (0.0106)	0.3698*** (0.0104)
Married	0.4722*** (0.0264)	0.4300*** (0.0250)	0.4262*** (0.0251)	0.4033*** (0.0245)
Potential work experience	0.0008 (0.0010)	0.0159*** (0.0010)	0.0033*** (0.0010)	0.0130*** (0.0010)
Married* Potential work experience	-1.1710*** (0.1157)	-0.9831*** (0.1079)	-0.9944*** (0.1108)	-0.9021*** (0.1065)
Spouse in LF	-0.0296* (0.0143)	-0.0624*** (0.0132)	-0.1051*** (0.0134)	-0.1059*** (0.0129)
Reside in Taipei<age15	0.2678*** (0.0160)	0.1469*** (0.0155)	0.1938*** (0.0152)	0.1341*** (0.0150)
Born after 1950	0.1852*** (0.0218)	0.2055*** (0.0200)	0.1991*** (0.0198)	0.1967*** (0.0191)
Primary school	--	0.2535*** (0.0394)	--	0.1885*** (0.0383)
Middle school	--	0.5080*** (0.0406)	--	0.3975*** (0.0395)
High school and above	--	0.8520*** (0.0410)	--	0.6303*** (0.0404)
Mandarin	--	0.1646*** (0.0118)	--	0.1116*** (0.0115)
F_Primary school	--	0.0570*** (0.0143)	--	0.0394** (0.0138)
F_Middle school	--	0.0540** (0.0166)	--	0.0254 (0.0161)
F_High school and above	--	0.1663*** (0.0173)	--	0.0966*** (0.0168)

Table 1-2 Heckit Two-Stage Estimation on Earnings: Full Sample

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Native mother	--	-0.0589*** (0.0142)	--	-0.0512*** (0.0135)
Public	--	--	0.2557*** (0.0130)	0.1612*** (0.0126)
Legislators, senior officials, Managers	--	--	0.8972*** (0.0266)	0.7056*** (0.0260)
Professionals and para-professionals	--	--	0.6021*** (0.0179)	0.4490*** (0.0175)
Technicians and related Workers	--	--	0.4623*** (0.0223)	0.3252*** (0.0214)
Clerical workers, service workers, and salespersons	--	--	0.3559*** (0.0176)	0.2574*** (0.0171)
Mechanical operators and assemblers	--	--	0.2218*** (0.0168)	0.2274*** (0.0164)
Unskilled workers and laborers	--	--	-0.0072 (0.0226)	0.0300 (0.0223)
Intercept	5.1845*** (0.0300)	4.0322*** (0.0520)	4.7890*** (0.0310)	4.0771*** (0.0514)
$\hat{\lambda}$	-0.5254 *** (0.1409)	-0.2917*** (0.0373)	-0.3756*** (0.0204)	-0.2170*** (0.0377)
LR_Chi_square	2437.5802	5329.0065	5790.5048	7231.8626
Sample size			18046	

Table 2-2 Heckit Two-Stage Estimation on Earnings: Sub-sample of Immigrants

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Male	0.3604*** (0.0280)	0.3573*** (0.0264)	0.3813*** (0.0273)	0.3652*** (0.0263)
Married	0.3554*** (0.0726)	0.3714*** (0.0676)	0.3323*** (0.0695)	0.3452*** (0.0659)
Potential work experience	0.0048 (0.0029)	0.0119*** (0.0027)	0.0058* (0.0029)	0.0112*** (0.0026)
Married* Potential work experience	-0.7715* (0.3334)	-0.7943** (0.2939)	-0.7410* (0.3235)	-0.7712** (0.2893)
Spouse in LF	0.0446 (0.0385)	0.0078 (0.0352)	-0.0227 (0.0358)	-0.0362 (0.0340)
Reside in Taipei<age15	0.1544*** (0.0320)	0.1100*** (0.0307)	0.1303*** (0.0297)	0.1044*** (0.0292)
Born after 1950	0.0617 (0.0569)	0.0621 (0.0540)	0.0811 (0.0529)	0.0641 (0.0518)
Primary school	--	0.4632** (0.1700)	--	0.5053** (0.1722)
Middle school	--	0.7679*** (0.1629)	--	0.7774*** (0.1646)
High school and above	--	1.1558*** (0.1576)	--	1.0523*** (0.1607)
Mandarin	--	0.0587 (0.0398)	--	0.0292 (0.0389)
F_Primary	--	0.0402 (0.0453)	--	0.0332 (0.0427)
F_Middle School	--	0.0728 (0.0437)	--	0.0548 (0.0417)
F_High school and above	--	0.1995*** (0.0394)	--	0.1415*** (0.0374)
Native mother		-0.0494		-0.0400

Table 2-2 Heckit Two-Stage Estimation on Earnings: Sub-sample of Immigrants

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Native mother	--	-0.0494 (0.0265)	--	-0.0400 (0.0256)
Public	--	--	0.1963*** (0.0278)	0.1354*** (0.0273)
Legislators, senior officials, Managers	--	--	0.6714*** (0.0631)	0.5959*** (0.0611)
Professionals and para-professionals	--	--	0.4087*** (0.0443)	0.3294*** (0.0426)
Technicians and related Workers	--	--	0.2452*** (0.0514)	0.1782*** (0.0492)
Clerical workers, service workers, and salespersons	--	--	0.1793*** (0.0451)	0.1400*** (0.0425)
Mechanical operators, Assemblers	--	--	0.0614 (0.0493)	0.0981* (0.0475)
Unskilled workers and Laborers	--	--	-0.2211*** (0.0629)	-0.1318* (0.0627)
Intercept	5.3793*** (0.0843)	3.9862*** (0.1851)	5.1081*** (0.0887)	3.9620*** (0.1897)
$\hat{\lambda}$	-0.4765*** (0.0343)	-0.3415*** (0.0617)	-0.4090*** (0.0346)	-0.3308*** (0.0523)
LR_chi_square	272.8737	561.0332	624.3866	817.7402
Sample size			2258	

Table 3-2 Heckit Two-Stage Estimation on Earnings: Sub-sample of Natives

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Male	0.3960*** (0.0120)	0.3640*** (0.0113)	0.4061*** (0.0114)	0.3707*** (0.0113)
Married	0.4713*** (0.0282)	0.4354*** (0.0268)	0.4278*** (0.0268)	0.4080*** (0.0261)
Potential work experience	0.0003 (0.0010)	0.0165*** (0.0010)	0.0029** (0.0010)	0.0132*** (0.0010)
Married* Potential work experience	-1.1462*** (0.1223)	-1.0117*** (0.1152)	-0.9716*** (0.1169)	-0.9125*** (0.1134)
Spouse in LF	-0.0408** (0.0152)	-0.0707*** (0.0142)	-0.1151*** (0.0143)	-0.1146*** (0.0139)
Reside in Taipei<age15	0.2696*** (0.0187)	0.1609*** (0.0180)	0.1949*** (0.0179)	0.1437*** (0.0175)
Born after 1950	0.2001*** (0.0233)	0.2201*** (0.0215)	0.2104*** (0.0212)	0.2088*** (0.0205)
Primary school	--	0.2426*** (0.0404)	--	0.1705*** (0.0391)
Middle school	--	0.4953*** (0.0420)	--	0.3760*** (0.0407)
High school and above	--	0.8355*** (0.0426)	--	0.6034*** (0.0418)
Mandarin	--	0.1759*** (0.0124)	--	0.1188*** (0.0121)
F_Primary school	--	0.0559*** (0.0151)	--	0.0374* (0.0146)
F_Middle School	--	0.0526** (0.0179)	--	0.0219 (0.0172)
F_High school and above	--	0.1622*** (0.0197)	--	0.0865*** (0.0192)

Table 3-2   Heckit Two-Stage Estimation on Earnings: Sub-sample of Natives

Second-stage: Log Earnings Regression

Variable	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Native mother	--	-0.0965*** (0.0212)	--	-0.0735*** (0.0200)
Public	--	--	0.2490*** (0.0148)	0.1632*** (0.0142)
Legislators, senior officials, Managers	--	--	0.9174*** (0.0292)	0.7179*** (0.0287)
Professionals and para-professionals	--	--	0.6158*** (0.0195)	0.4630*** (0.0192)
Technicians and related Workers	--	--	0.4835*** (0.0245)	0.3459*** (0.0237)
Clerical workers, service workers, and salespersons	--	--	0.3678*** (0.0189)	0.2714*** (0.0185)
Mechanical operators, Assemblers	--	--	0.2381*** (0.0178)	0.2394*** (0.0174)
Unskilled workers and laborers	--	--	0.0133 (0.0239)	0.0441 (0.0237)
Intercept	5.1605*** (0.0319)	4.0568*** (0.0568)	4.7635*** (0.0329)	4.0972*** (0.0558)
$\hat{\lambda}$	-0.5253*** (0.0154)	-0.2891*** (0.418)	-0.3692*** (0.2228)	-0.2056*** (0.0405)
LR_chi_square	4358.6879	4358.7211	4388.2519	4868.3295
Sample size			15788	

Table 4 Earnings Decomposition by Factor – Immigrants s as a reference group (%)

Variable	Model (1) Baseline		Model (2) Human Capital		Model (3) Occupation		Model (4) Human Capital and Occupation	
	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff
Subtotal contribution by baseline factors	2.9	0.10	0.2	-20.8	2.3	-2.9	0.6	-14.5
Male	0.30	-2.00	0.30	-0.40	0.30	-1.40	0.30	-0.30
Married	-0.80	-8.30	-0.90	-4.60	-0.80	-6.90	-0.80	-4.50
Potential work experience	-1.20	10.60	-3.00	-11.00	-1.50	6.80	-2.80	-4.70
Married*Potential work experience	2.20	7.30	2.30	4.20	2.20	4.50	2.20	2.80
Spouse in LF	0.00	4.90	0.00	4.50	0.00	5.30	0.00	4.50
Reside in Taipei<age15	2.10	-0.90	1.50	-0.40	1.70	-0.50	1.40	-0.30
Born after 1950	0.30	-11.50	0.30	-13.10	0.40	-10.70	0.30	-12.00
Subtotal contribution by Human capital	--	--	27.60	26.10	--	--	20.60	39.6
Primary school	--	--	-6.00	3.50	--	--	-6.60	5.40
Middle school	--	--	-8.30	5.00	--	--	-8.40	7.40
High school and above	--	--	30.80	19.80	--	--	28.00	27.70
Mandarin	--	--	1.90	-6.70	--	--	0.90	-5.20
F_Primary school	--	--	-1.00	-0.70	--	--	-0.80	-0.20
F_Middle school	--	--	0.00	0.30	--	--	0.00	0.60
F_high school and above	--	--	7.80	0.50	--	--	5.50	0.70

Table 4 Earnings Decomposition by Factor – Immigrants s as a reference group (%)

Variable	Model (1) Baseline		Model (2) Human Capital		Model (3) Occupation		Model (4) Human Capital and Occupation	
	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff
Native mother	--	--	2.40	4.40	--	--	2.00	3.20
Subtotal contribution by Occupations	--	--	--	--	8.70	-16.10	6.30	-11.10
Public	--	--	--	--	2.10	-0.60	1.40	-0.30
Legislators, senior Officials, managers	--	--	--	--	1.50	-1.10	1.30	-0.50
Professionals and para-professionals	--	--	--	--	3.80	-3.20	3.10	-2.10
Technicians and related workers	--	--	--	--	0.50	-1.20	0.40	-0.80
Clerical workers, service workers, and salespersons	--	--	--	--	0.70	-4.50	0.60	-3.10
Mechanical operators, and assemblers	--	--	--	--	-0.60	-3.90	-0.90	-3.10
Unskilled workers and laborers	--	--	--	--	0.70	-1.60	0.40	-1.20
Total	2.90	0.10	27.80	5.30	11.00	-19.00	27.50	14.00

Table 5 Earnings Decomposition by Factor -- Natives as a reference group   (%)

Variable	Model (1) Baseline		Model (2) Human Capital		Model (3) Occupation		Model (4) Human Capital and Occupation	
	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff
Subtotal contribution by baseline factors	7.1	-4.20	1.20	-21.50	5.10	-5.60	1.70	-15.60
Male	0.40	-2.00	0.30	-0.40	0.40	-1.40	0.30	-0.30
Married	-1.10	-8.10	-1.00	-4.40	-1.00	-6.60	-0.90	-4.40
Potential work experience	-0.10	9.50	-4.20	-9.80	-0.70	6.10	-3.30	-4.20
Married*Potential work experience	3.30	6.20	2.90	3.60	2.80	3.80	2.70	2.30
Spouse in LF	0.00	4.90	0.00	4.50	0.00	5.30	0.00	4.50
Reside in Taipei<age15	3.60	-2.50	2.10	-1.10	2.60	-1.40	1.90	-0.80
Born after 1950	1.00	-12.20	1.10	-13.90	1.00	-11.40	1.00	-12.70
Subtotal contribution by Human capital	--	--	28.80	24.60	--	--	19.7	40.60
Primary school	--	--	-3.20	0.70	--	--	-2.20	1.00
Middle school	--	--	-5.40	2.10	--	--	-4.10	3.00
High school and above	--	--	22.20	28.30	--	--	16.10	39.70
Mandarin	--	--	5.60	-10.50	--	--	3.80	-8.00
F_Primary school	--	--	-1.40	-0.30	--	--	-0.90	-0.10
F_Middle school	--	--	0.00	0.30	--	--	0.00	0.60
F_high school and above	--	--	6.30	1.90	--	--	3.40	2.90

## Table 5 Earnings Decomposition by Factor -- Natives as a reference group   (%)

Variable	Model (1) Baseline		Model (2) Human Capital		Model (3) Occupation		Model (4) Human Capital and Occupation	
	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff	Diff in endow	Diff in coeff
NativeMother	--	--	4.70	2.10	--	--	3.60	1.50
Subtotal contribution by Occupations	--	--	--	--	10.6	-17.9	7.10	-12.00
Public	--	--	--	--	2.60	-1.20	1.70	-0.60
Legislators, senior Officials, managers	--	--	--	--	2.00	-1.60	1.60	-0.80
Professionals and para-professionals	--	--	--	--	5.70	-5.10	4.30	-3.30
Technicians and related workers	--	--	--	--	1.00	-1.60	0.70	-1.20
Clerical workers, service workers, and salespersons	--	--	--	--	1.50	-5.30	1.10	-3.70
Mechanical operators, and assemblers	--	--	--	--	-2.20	-2.30	-2.20	-1.80
Unskilled workers and laborers	--	--	--	--	0.00	-0.80	-0.10	-0.60
Total	7.10	-4.20	30.00	3.10	15.60	-23.50	28.50	13.0

Table 6 Earnings Differentials Decomposition Results

	Model (1) Baseline	Model (2) Human Capital	Model (3) Occupation	Model (4) Human Capital and Occupation
Immigrants as a reference group				
(41) Due to explained portion difference in observed characteristics, (endowment differences):	2.90	27.80	11.10	27.50
(B) Due to unexplained portion (discrimination): (B1)+(B2)	**22.00**	-1.80	15.50	0.50
(B1) difference in coefficient	0.10	5.30	-19.00	14.00
(B2) difference in constant	21.90	-7.10	34.50	-13.50
© Total differentials, (A)+(B):	**24.80**	26.00	26.50	28.00
(D) Explained part as % of total differentials: (A/C)	11.69	**106.92**	**41.70**	**98.21**
(E) Discrimination part as % of total differentials: (B/C)	88.31	**-6.92**	**58.30**	**1.79**
Natives as a reference group				
(41) Due to explained portion difference in observed characteristics, (endowment differences):	7.10	30.00	15.60	28.50
(B) Due to unexplained portion (discrimination): (B1)+(B2)	**17.70**	-4.00	10.90	-0.50
(B1) difference in coefficient	-4.20	3.10	-23.50	13.0
(B2) difference in constant	21.90	-7.10	34.50	-13.50
©Total differentials, (A)+(B):	**24.80**	26.00	26.50	28.00
(D) Explained part as % of total differentials: (A/C)	28.63	**115.38**	**58.90**	**101.79**
(E) Discrimination part as % of total differentials: (B/C)	71.37	**-15.38**	**41.10**	**-1.79**

Conclusions:

1. A major portion of earnings differentials is originated from differences in characteristics and is thus an explanatory part; only a negligible fraction is attributed to an unexplained, or "discriminatory", part.
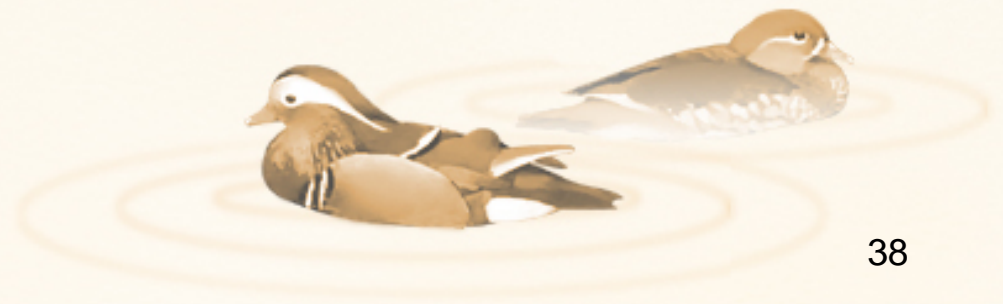
Conclusions:

2. The main sources causing earnings differentials are as follows.

1) **An individual and father's educational attainments at a high school or above**

2) **Occupational choices:**

   ✷ Professionals and para-professionals

   ✷ Legislators, senior official, managers

3) **Mandarin language proficiency**
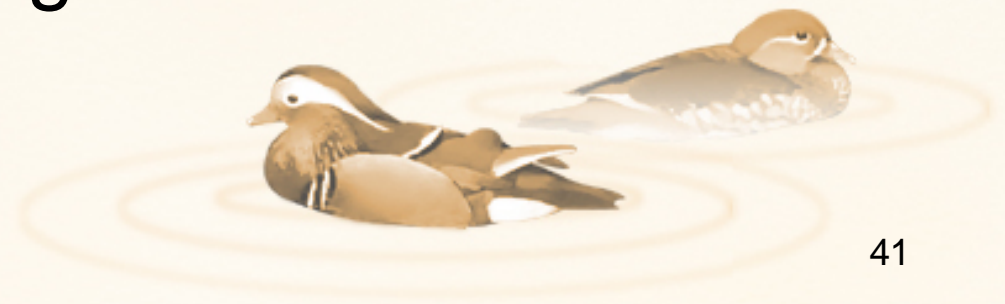4) **Mother with Hokkien ethnicity**

Conclusions:

3. An individual educations at a <u>primary school</u> and <u>father's educations at a middle school or below</u> are sources that reduce earnings differentials between immigrants and natives.

4. With occupation in <u>Mechanical operators, and assemblers</u>, the earnings gap is smaller between immigrants and natives.

Shortcomings and Future research:

- The compulsory primary school education and middle school education increase the proficiency of Mandarin speaking of natives. Natives may not have disadvantage of Mandarin speaking.
- Earnings differences between second-generation immigrants and natives.
- Males only.

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Thank you for your listening