# The Social Context of Science/Math Majors from Elite Universities: Family and School Influence

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# Organization of the Report

A. Taiwan Youth Project

    Research Design: sampling, framework, implement

    Phase I and Phase II surveys

B. Social Context in the Growth Trajectory

    The longitudinal influence of **Family** context

    The longitudinal effect of **Education** context

C. Reflections

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# Taiwan Youth Project *has been funded by*

- **Thematic Research Project of Academia Sinica (2004-2009)**
  The Life Course and Living Experiences of Adolescents:
  The Interplay of Family, School and Community (AS-93-TP-C01)

- **The Innovative Research Project of Academia Sinica (2009-2020)**
  Taiwan Youth Project (Phase II): A Continuing Study of the Transition
  into Young Adulthood
  **(2011-2014)** The Life Course of Young Adults in Taiwan: Studying
  Developmental Trajectories of Young Adults Since Early Adolescence

- **National Science Council / Ministry of Science and Technology**
  (NSC97-2410-H-001-043-MY3; NSC100-2410-H-001-077-MY3;
  NSC103-2410-H-001-065-MY3; MOST106-107-2410-H-001-053; MOST108..-001-092 )

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# Taiwan Youth Project

1. **The Growth Trajectory of Young Generation**
   family and sociological perspectives

2. **From Early Adolescence to Young Adulthood**
   The life course perspective (Glen Elder)

3. **Indigenous Developmental Patterns**
   diverse patterns: socio-and cultural norms

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# Taiwan Youth Project (TYP)
## A Longitudinal Panel Study

Methods

    <u>Surveys</u>: face-to-face, self-administered, telephone (N=5700)

    <u>In-depth Interviews</u>: 60 parent-youth dyads, 3-4 waves

Samples

    <u>Youth</u> since Junior High: 1st year and 3rd year in 2000

    <u>Parents</u>, Home teachers, and School principals

    <u>Spouse</u>: main samples and parents

Time Table

    <u>Phase I</u> : 2000-2009 (launch in 1998、pre-test in 1999)

    <u>Phase II</u>: 2011-13、2014-15、2017-18

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# Methods and Research Design (1)
# Sampling

**Panel Survey**: 2000-2009 (2 cohorts/year, + parents &teachers)

2011-2017 (combine 2 cohorts，once every 3 yrs)

**Samples**: **Youth** main samples (average age 13 to 31)

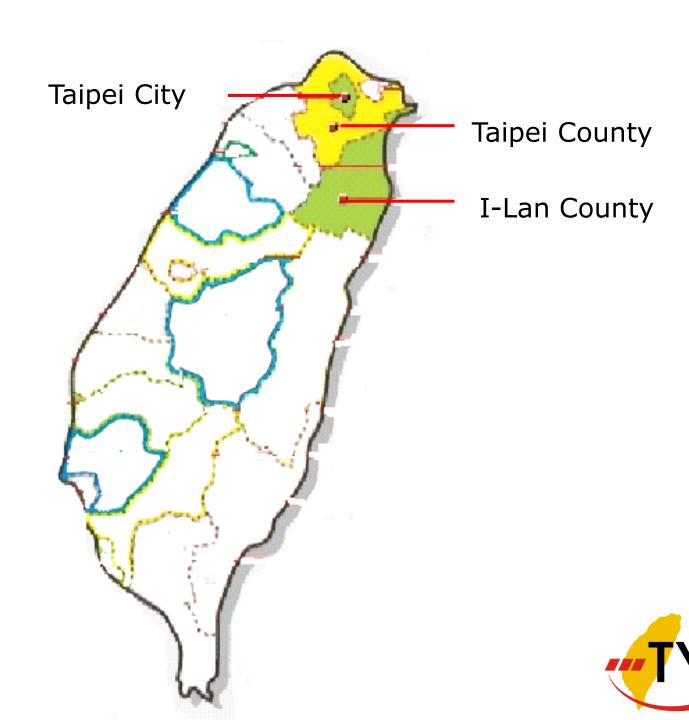**Parents** (average age 42-52, 62)

Home **Teachers and Principals** in Junior High

**Spouse** samples (from Phase II)

**Data Type**: questionnaires and in-depth interviews

**Fields**: northern Taiwan (gender, rural-urban, social class)

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Taipei City

Taipei County

I-Lan County

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# Sampling Design (2000)

Youth: 1st and 3rd year in Junior High (J1, J3)

Taipei City: J1 (1000), J3 (1000)

Taipei County:J1 (1000), J3 (1000)

I-Lan County: J1 (800)，J3 (800)

Home Teachers: J1 and J3 (81 classes for each cohort)

Parents : 1 parent for each student

School Principals: 40 schools (2004)

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# Sampling  Method

## Multi-Stage Stratified Cluster

1. urban degree: 3, 3 & 2 strata in three regions
2. # of jr hi in each stratum /all jr hi in the region→
      <u>sample no</u>. for that stratum
3. (2) / mean student no. of the class in each region →
      <u>class no.</u> for that region
4. two random classes per school

   **～ sample the whole class ～**

# Sampling Frame

Taipei City: 16 junior high schools

J1: 2 classes for each school (2 x16)

J3: 2 classes for each school (2 x16)

Taipei County: 15 junior high schools

2 classes of J1 and J3 for each school

I-Lan County: 9 junior high schools

2 classes of J1 and J3 for each school

**81 classes** for both J1 and J3 (1 special class)

# Initial Samples 2000

**(Actual)**

- Youth  J1: 2696  (2690)

  J3: 2890  (2851)

- Parent  J1: 2696  (2666)
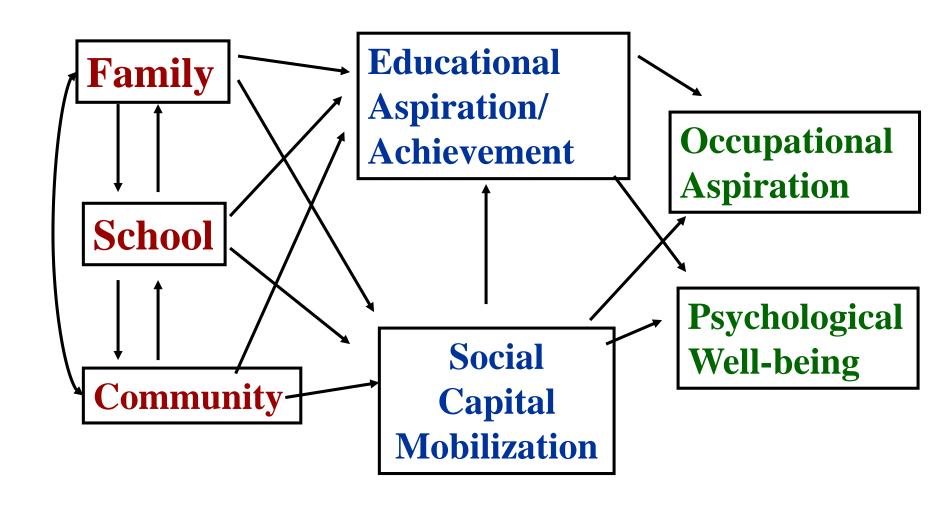
  J3: 2890  (2800)

- Teacher  J1: 2696  (2628)

  J3: 2890  (2840)

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# Research Framework (TYP Phase I)

# TYP Phase I (2000-2009): Main Findings

- **Family Context**

   Longitudinal influence of early family experience


- **School Context**

   Longitudinal effects of educational tracking


- **Community Context**

   Regional difference in leaving home, edu. and work

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# TYP Phase II (2011-2020)

- **Follow the Panel into Young Adulthood**

  capture the beginning adulthood experience

- **Delineate Linkages** account for different trajectories over the life course

- **Compare Generational Differences**

  trace effects from various stages

# Phase II  Main Samples

Combine J1 and J3＝Adult samples

☐ Phase II Wave 1: 2011--2012

☐ Phase II Wave 2: 2014--2015

☐ Phase II Wave 3: 2017--2018

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# Phase II  Youth Spouse Surveys

Spouse of the 2011、2014、2017 married samples

□ Phase II Wave 1 spouse survey: 2013─2014

□ Phase II Wave 2 spouse survey: 2015─2016

□ Phase II Wave 3 spouse survey: 2018

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# Phase II Adult Surveys

- Combine J1 and J3 youth sample = adult samples
- From PIW1 5541 samples➔3129、2752、2550
- Focus on: marriage, child-bearing,
  educational and occupational outcomes


- **Continuing items**：family, values, networks, etc.
- **New items**：work experience、work abroad、
  marriage、intergenerational relations
  pre-marital sex、intimate relations

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# TYP Data Collection: 2000-2018

| Sample | Phase I | 2000 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2006 | 2007-08 | 2009 | Phase II | 2011-12 | 2014-15 | 2017-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wave1 | Wave2 | Wave3 | Wave4 | Wave5 | Wave6 | Wave7 | Wave8 | Wave9 | | Wave1 | Wave2 | Wave3 |
| **J1** | | J1 (spring) | J2 (spring) | J3 (spring) | S1 (fall) | S2 (fall) | S3 (spring) | C1 (spring) | C2 (spring) | C4 (spring) | **Youth** | Adult 1 (fall) | Adult 2 (fall) | Adult 3 (winter) |
| | **Youth** | Self-Adm | Self-adm | Self-adm | Phone | Phone | Interview | Phone | Interview | Interview | | Interview | Interview | Interview |
| | **Parent** | Self-adm | | Interview | | | Interview | | Interview | Interview | | | | |
| | **Teacher** | Self-adm | Self-adm | Self-adm | | | | | | | | | | |
| **J3** | | J3 (spring) | S1 (fall) | S2 (fall) | S3 (spring) | C1 (spring) | C2 (fall) | C4 (fall) | M1 (fall) | | **Spouse** | Spouse 1s ('13 fall) | Spouse 2s ('15 fall) | Spouse 3s ('18 fall) |
| | **Youth** | Self-Adm | Phone | Phone | Interview | Phone | Interview | Interview | Phone | | | Interview | Interview | interview |
| | **Parent** | Self-adm | | | Interview | | Interview | Interview | | | | | | |
| | **Teacher** | Self-adm | | | | | | | | | | | | |
| **In-depth Interviews** | | | | | | **60 P-Y dyad (W1)** | | **62 Youth 39 Parents (W2)** | | | | **51 Youth (W3)** | **51 Youth 22 Parents (W4)** | |
| **School Principal** | | | | | | Self-adm | | | | | | | | |

# TYP (Phase II) Data Collection: 2011-2020

| Sample | Respondent | 2011-12 | 2013-14 | 2014-15 | 2015-16 | 2017 | 2018 | 2019-2020 |
|---|---|---|---|---|---|---|---|---|
| | | **Wave 1** | **Spouse Wave 1** | **Wave 2** | **Spouse Wave 2** | **Wave 3** | **Spouse Wave 3** | **Parents** |
| **J1+J3** | **Youth** | **54.56%** (3129/5734) | | **68.71%** (2752/4005) | | **77.30%** (**2550**/3299) | | **55%** (**1676**/3044) |
| | | Interview | | Interview | | Interview | | |
| | **Spouse** | | **50.46%** (109/216) | | **73.71%** (401/544) | | **75.11%** (**709**/944) | **~55%** (**877**) |
| | | | Interview | | Interview | | Interview | |
| **In-depth Interviews** | | 2010~2012 | 2012~2013 | | 2015~2016 | | 2017-2018 | 2019-2020 |
| | | 51 Youth (W3) | 1 Youth (old) 6 Youth (new) (married) | | 4 Youth (old) 13 Youth (new) (married) | | 17 Youth (old) -12 unmarried 5 married | 10 Youth (old) -10 unmarried 22 Parents |

# Important Findings

- **Family Context**

    earlier family experiences → intimate relations

    → family formation

- **Educational Tracking and Achievement**

    → psychological well-being

    → school to work transition

- **Marriage and Childbirth Package**

    remains strong for young married couples

# The Longitudinal Influence of Family Experiences (Yu-huey Chou, Ying-Hwa Chang, etc.）
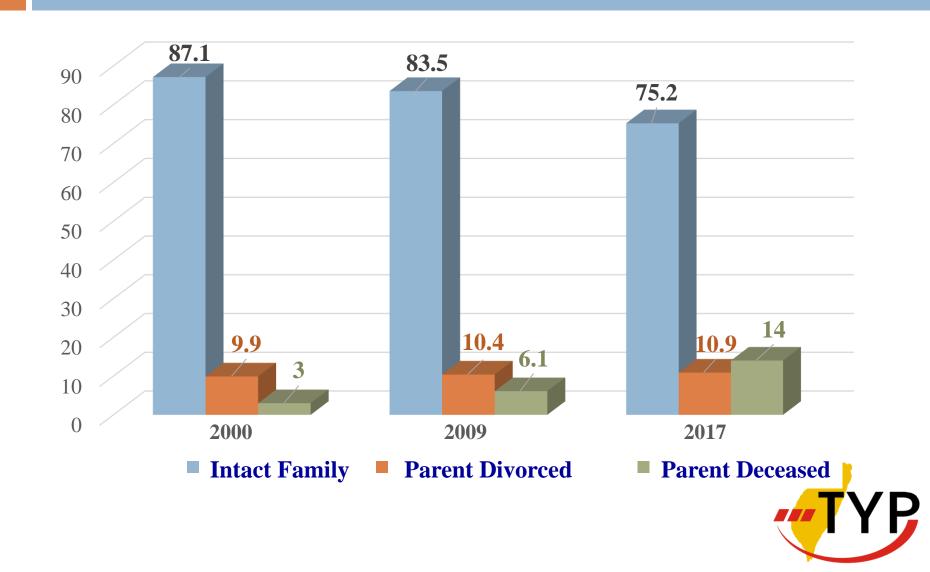
- **Family Structure** and **Family Relations**

- **Parental Divorce** on Children's Intimate Relations

- Effects of **Norm and Resources**
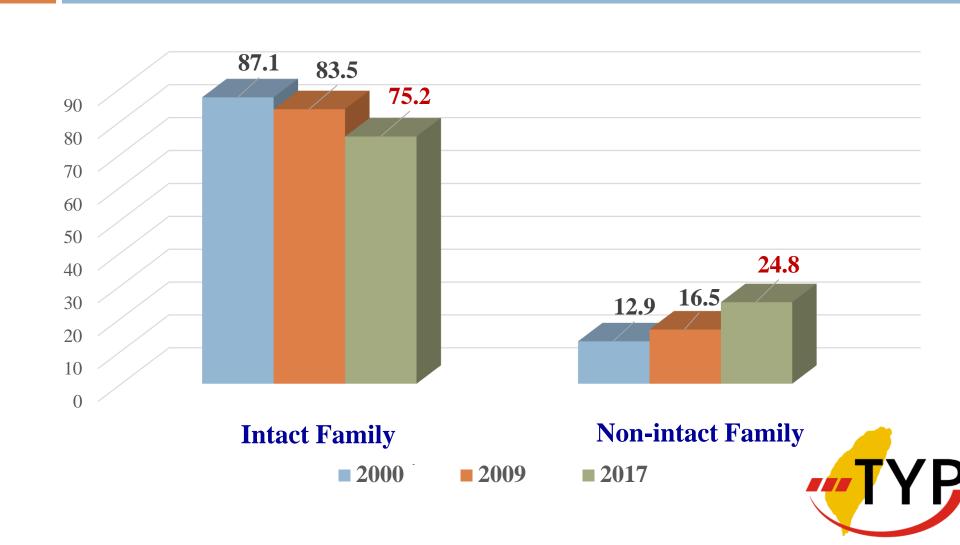
# Family Structure (J1 age13, age 22, age30)



| | 2000 | 2009 | 2017 |
|---|---|---|---|
| Intact Family | 87.1 | 83.5 | 75.2 |
| Parent Divorced | 9.9 | 10.4 | 10.9 |
| Parent Deceased | 3 | 6.1 | 14 |

# **Family Structure**
## from Early Adolescence to Young Adulthood

# Family Structure and Family Relations:
## the Longitudinal Influence on Youth

☐ Growing up in **non-intact family** background

    (parents divorced in earlier life course)

☐ Intimate relationship and **family formation** during transition to young adulthood

# *Main findings*          (Tai, Liu, Ma, Lin, etc.)

- Adequate economic security and positive earlier family experience contribute to **men's** family formation, *but* produce negative effect on **women**

- **Parental divorce** occurred before mid-adolescence leads to *female's* earlier marriage and childbirth

- **Parent-children conflict** in adolescence→ early marriage
  **Parental conflict** in adolescence→ low marriage motivation

# Social Context in the Growth Trajectory—
## science/math majors in elite universities

- **Family**: structure, SES, relations
- **School**: ranking, classroom dynamics

- Science and Math majors
- Elite universities-- exclude non-s/m focus

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# Elite University- strong in science/math

臺灣大學

清華大學

交通大學

成功大學

中央大學

陽明大學

中興大學

# Family Structure during Adolescence: elite university vs. others

| 家庭結構 (國三) | Elite | Others | Total |
|---|---|---|---|
| 雙親家庭 | 93.88 (138) | 88.23 (1919) | 88.59 (2057) |
| 父母之一 去世/離婚/分居 | 6.12 (9) | 11.77 (256) | 11.41 (265) |
| Total % (N) | 100 (147) | 100 (2175) | 100 (2322) |

# **Family SES**: Adolescence and Young Adulthood elite university vs. others

| 家戶每月收入 (15歲) | Elite | Others | Total | 家戶每月收入 (31歲) | Elite | Others | Total |
|---|---|---|---|---|---|---|---|
| 3萬以下 | 4.17 (6) | 16.15 (338) | 15.38 (344) | 5萬以下 | 6.99 (10) | 18.55 (386) | 17.80 (396) |
| 3萬-6萬 | 40.28 (58) | 45.63 (955) | 45.28 (1013) | 5萬-9萬 | 26.57 (38) | 34.55 (719) | 34.04 (757) |
| 6萬-9萬 | 29.86 (43) | 19.97 (418) | 20.61 (461) | 9萬-12萬 | 25.87 (37) | 21.82 (454) | 22.08 (491) |
| 9萬以上 | 25.69 (37) | 18.25 (382) | 18.73 (419) | 12萬以上 | 40.56 (58) | 25.08 (522) | 26.08 (580) |
| Total | 100 (144) | 100 (2093) | 100 (2237) | Total | 100 (143) | 100 (2081) | 100 (2224) |

# **Family SES**: Adolescence and Young Adulthood *science/math majors* in elite university

| 家戶每月收入 (15歲) | Elite&理工 | 家戶每月收入 (31歲) | Elite&理工 |
|---|---|---|---|
| 3萬以下 | 3.77% (4) | 5萬以下 | 5.71% (6) |
| 3萬-6萬 | 41.51% (44) | 5萬-9萬 | 27.62 (29) |
| 6萬-9萬 | 25.47 (27) | 9萬-12萬 | 23.81 (25) |
| 9萬以上 | 29.25 (31) | 12萬以上 | 42.86 (45) |
| Total % (N) | 100 (106) | Total % (N) | 100 (105) |

# **Classroom Type** during Late Adolescence: science/math majors vs. others

| J1樣本<br>(高三) | 男女分班 | 男女合班 | Total | J3樣本<br>(高三) | 男女分班 | 男女合班 | Total |
|---|---|---|---|---|---|---|---|
| 理工科系 | 55.18<br>(213) | 50.93<br>(302) | 52.60<br>(515) | 理工科系 | 60.09<br>(140) | 49.22<br>(283) | 52.35<br>(423) |
| 非理工科系 | 44.82<br>(173) | 49.07<br>(291) | 47.40<br>(464) | 非理工科系 | 39.91<br>(93) | 50.78<br>(292) | 47.65<br>(385) |
| Total | 100<br>(386) | 100<br>(593) | 100<br>(979) | Total | 100<br>(233) | 100<br>(575) | 100<br>(808) |

# **Relations with Teacher** in Late Adolescence
## all vs. science/math major in elite university

| | 老師對我<br>幫助很大 | 我的導師<br>很關心我 | 老師幫助很大<br>(Elite&理工) | 導師很關心我<br>(Elite&理工) |
|---|---|---|---|---|
| 很同意 | 15.64<br>(573) | 11.82<br>(433) | 10.31<br>(10) | 11.34<br>(11) |
| 同意 | **62.77**<br>(2300) | 63.55<br>(2328) | **74.33**<br>(72) | 62.89<br>(61) |
| 不同意 | 18.75<br>(687) | 21.65<br>(793) | 13.40<br>(13) | 23.71<br>(23) |
| 很不同意 | 2.84<br>(104) | 2.98<br>(109) | 2.06<br>(2) | 2.06<br>(2) |
| Total % (N) | 100<br>(3664) | 100<br>(3663) | 100<br>(97) | 100<br>(97) |

# School Ranking during Senior High:
## elite university vs. others

| 班級名次 (J1高三) | Elite | Others | Total | 班級名次 (J3高三) | Elite | Others | Total |
|---|---|---|---|---|---|---|---|
| 最好 | **23.81** (15) | 15.72 (139) | 16.26 (154) | 最好 | **31.34** (21) | 12.58 (112) | 13.90 (133) |
| 次好 | 36.51 (23) | 34.84 (308) | 34.95 (331) | 次好 | 38.81 (26) | 31.80 (283) | 32.29 (309) |
| 普通 | 20.63 (13) | 26.81 (237) | 26.40 (250) | 普通 | 19.40 (13) | 34.94 (311) | 33.86 (324) |
| 中後 | 15.87 (10) | 17.19 (152) | 17.11 (162) | 中後 | 4.48 (3) | 16.07 (143) | 15.26 (146) |
| 最後 | 3.17 (2) | 5.43 (48) | 5.28 (50) | 最後 | 5.97 (4) | 4.61 (41) | 4.69 (45) |
| Total | 100 (163) | 100 (884) | 100 (947) | Total | 100 (67) | 100 (890) | 100 (957) |

# Academic Competence during Junior High
## elite university vs. others

| | 國三數學（J1） | | | | | | 國三英文 (J1) | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 很困難 | 還算困難 | 不太困難 | 一點不困難 | Total | | 很困難 | 還算困難 | 不太困難 | 一點不困難 | Total |
| **Elite** | 5.63 (4) | 23.94 (17) | **45.07** **(32)** | **23.35** **(18)** | 100 (71) | **Elite** | 12.68 (9) | 22.54 (16) | **38.03** **(27)** | **26.76** **(19)** | 100 (71) |
| Others | 28.61 (315) | 37.11 (409) | 25.15 (277) | 9.08 (100) | 100 (1101) | Others | 27.75 (305) | 31.39 (345) | 30.12 (331) | 10.74 (118) | 100 (1099) |
| Total | 27.22 (319) | 36.35 (426) | 26.37 (309) | 10.06 (118) | 100 (1172) | Total | 26.84 (314) | 30.85 (361) | 30.60 (358) | 11.71 (137) | 100 (1170) |

## 高三數學 (J1)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| **Elite** | 14.29 (9) | 41.27 (26) | 20.63 (13) | 17.46 (11) | 6.35 (4) | 100 (63) |
| Others | 6.67 (59) | 22.74 (201) | 30.43 (269) | 23.98 (212) | 16.18 (143) | 100 (884) |
| Total | 7.18 (68) | 23.97 (227) | 29.78 (282) | 23.55 (223) | 15.52 (147) | 100 (947) |

## 高三數學 (J3)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| **Elite** | 20.90 (14) | 28.36 (19) | 26.87 (18) | 16.42 (11) | 7.46 (5) | 100 (67) |
| Others | 7.44 (66) | 20.07 (178) | 29.54 (262) | 25.14 (223) | 17.81 (158) | 100 (887) |
| Total | 8.39 (80) | 20.65 (197) | 29.35 (280) | 24.53 (234) | 17.09 (163) | 100 (954) |

## 高三英文 (J1)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| **Elite** | 12.70 (8) | 38.10 (24) | 17.46 (11) | 14.29 (9) | 17.46 (11) | 100 (63) |
| Others | 5.65 (50) | 21.24 (188) | 26.21 (232) | 25.88 (229) | 21.02 (186) | 100 (885) |
| Total | 6.12 (58) | 22.36 (212) | 25.63 (243) | 25.11 (238) | 20.78 (197) | 100 (948) |

## 高三英文 (J3)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| **Elite** | 14.93 (10) | 23.88 (16) | 26.87 (18) | 14.93 (10) | 19.40 (13) | 100 (67) |
| Others | 7.53 (67) | 21.12 (188) | 26.74 (238) | 25.39 (226) | 19.21 (171) | 100 (890) |
| Total | 8.05 (77) | 21.32 (204) | 26.75 (256) | 24.66 (236) | 19.23 (184) | 100 (957) |

# Academic Competence during Junior High
## science/math majors vs. others

| | 國三數學 (J1) | | | | | | 國三英文 ( J1 ) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 很困難 | 還算困難 | 不太困難 | 一點不困難 | Total | | 很困難 | 還算困難 | 不太困難 | 一點不困難 | Total |
| 理工科 | 22.58 (140) | 33.71 (209) | **31.61** (196) | 12.10 (75) | 100 (620) | 理工科 | **30.16** (186) | **32.41** (200) | 26.90 (166) | 10.53 (65) | 100 (617) |
| 非理工 | 31.28 (178) | 39.02 (222) | 22.14 (126) | 7.56 (43) | 100 (569) | 非理工 | 22.46 (128) | 28.95 (165) | 35.09 (200) | 13.51 (77) | 100 (570) |
| Total | 26.75 (318) | 36.25 (431) | 27.08 (322) | 9.92 (118) | 100 (1189) | Total | 26.45 (314) | 30.75 (365) | 30.83 (366) | 11.97 (142) | 100 (1187) |

## 高三數學（J1）

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 理工科 | 8.07 (41) | **27.95** (142) | 31.10 (158) | 20.08 (102) | 12.80 (65) | 100 (508) |
| 非理科 | 6.61 (30) | 19.82 (90) | 28.19 (128) | 27.09 (123) | 18.28 (83) | 100 (454) |
| Total | 7.38 (71) | 24.12 (232) | 29.73 (286) | 23.39 (225) | 15.38 (148) | 100 (962) |

## 高三數學（J3）

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 理工科 | 9.09 (45) | **21.82** (108) | 31.11 (154) | 25.45 (126) | 12.53 (62) | 100 (495) |
| 非理工 | 7.63 (36) | 19.28 (91) | 27.54 (130) | 23.94 (113) | 21.61 (102) | 100 (472) |
| Total | 8.38 (81) | 20.58 (199) | 29.37 (284) | 24.72 (239) | 16.96 (164) | 100 (967) |

## 高三英文（J1）

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 理工科 | 4.13 (21) | 20.63 (105) | 24.56 (125) | 27.70 (141) | **22.99** (117) | 100 (509) |
| 非理工 | 8.81 (40) | 24.01 (109) | 26.43 (120) | 22.47 (102) | 18.28 (83) | 100 (454) |
| Total | 6.33 (61) | 22.22 (214) | 25.44 (245) | 25.23 (243) | 20.77 (200) | 100 (963) |

## 高三英文（J3）

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 理工科 | 6.24 (31) | 18.31 (91) | 28.77 (143) | 23.14 (115) | **23.54** (117) | **100 (497)** |
| 非理工 | 10.57 (50) | 24.95 (118) | 24.31 (115) | 26.00 (123) | 14.16 (67) | 100 (473) |
| Total | 8.35 (81) | 21.55 (209) | 26.60 (258) | 24.54 (238) | 18.97 (184) | 100 (970) |

## 高三數學 (J1, Elite&理工)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 數學 | 17.39 (8) | 41.30 (19) | 21.74 (10) | 15.22 (7) | 4.35 (2) | 100 (46) |
| 英文 | 10.87 (5) | 36.96 (17) | 17.39 (8) | 15.22 (7) | 19.57 (9) | 100 (46) |

## 高三數學 (J3, Elite&理工)

| | 好很多 | 好一點 | 差不多 | 差一點 | 差很多 | Total |
|---|---|---|---|---|---|---|
| 數學 | 25.49 (13) | 29.41 (15) | 23.53 (12) | 15.69 (8) | 5.88 (3) | 100 (51) |
| 英文 | 15.69 (8) | 25.49 (13) | 23.53 (12) | 15.69 (8) | 19.61 (10) | 100 (51) |

## 國三科目 ( J1, Elite&理工）

| | 很困難 | 還算困難 | 不太困難 | 一點也不困難 | Total |
|---|---|---|---|---|---|
| 數學 | 1.89 (1) | 26.42 (14) | 49.06 (26) | 22.64 (12) | 100 (53) |
| 理化 | 1.89 (1) | 28.30 (15) | 49.06 (26) | 20.75 (11) | 100 (53) |
| 英文 | 11.32 (6) | 26.42 (14) | 37.74 (20) | 24.53 (13) | 100 (46) |

# General Profile on Academic Competence

| | 國三 (2002) | | 高三 (2005) | |
|---|---|---|---|---|
| | **Elite** | **數理工** | **Elite** | **數理工** |
| 數學 | ✓ | ✓ | ✓ | ✓ |
| 英文 | ✓ | ✗ | ✓ | ✗ |
| 理化 | ✓ | ✓ | | |

J1樣本

# Entering Elite National Universities

- **Family Context**

  family structure, family SES

  -not family relations

- **School Context**

  ranking/competence!

  -not teacher-student nor peer relations

  *network influence?*

# Education and Occupation in Young Adulthood
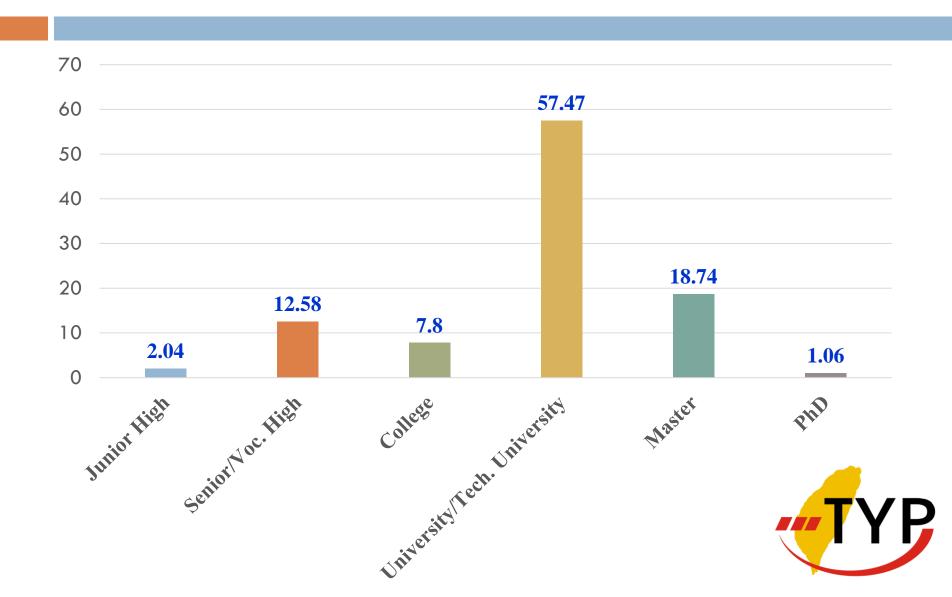(C.H Liu, M.T. Tsai, M. Gebel, Y.L. Chiang)

- **Type** of college/university graduated and subsequent occupational experience

- School to Work Transition

- Intergenerational Transmission of Educational Achievement

# Actual Educational Attainment (2017)

# Educational Attainment: by Gender

|                    | **Male** | **Female** | **F-M** |
|--------------------|----------|------------|---------|
| **Below College**  | **26.0** | **17.6**   | -8.4    |
| **Private University** | **53.4** | **62.7** | 9.3     |
| **Nat'l University** | 12.7   | 12.8       | 0.1     |
| **Elite Nat'l Univ.** | 7.9   | 7.0        | -1.0    |
| Total              | 100.0    | 100.0      |         |

TYP

# Education and Occupation of Young Adults
(C.H. Liu)

- Link Occupational Outcome w/ Educational Attainment

- To emphasize the educational competition in Taiwan,

  we start with Type of College/University attended

  and examine Earning Differences

TYP

# Sample Characteristics in 2017 (N=2168)

| Personal characteristics | |
|---|---|
| age in 2017 (years) | 32 |
| female | 0.45 |
| Junior high school location: | |
| Taipei city | 0.37 |
| New Taipei city | 0.38 |
| Yi-lan | 0.25 |
| **ever married** | **0.38** |
| **had kid** | **0.24** |
| **good health status** | **0.47** |
| **Family background** | |
| father's education level: below high school **(ref.)** | **0.41** |
| father's education level: high school | **0.34** |
| father's education level: some college or above | **0.24** |
| mother's education level: below high school **(ref.)** | **0.45** |
| mother's education level: high school | **0.38** |
| mother's education level: some college or above | **0.17** |

# School and Work (2017)

| | |
|---|---:|
| **Outcome Variables:** | |
| earning (monthly, measured in thousand NTD) | 49.2 |
| log(earning) | 10.7 |
| wage (in hour, NTD) | 249.2 |
| log(wage) | 5.4 |
| Job satisfaction (standardized score from 9 items) | 0 |
| **Educational Attainment:** | |
| **below college** | **0.22** |
| **four-year college/university** | **0.57** |
| **master or above** | **0.21** |
| years of schooling | 15.7 |
| **College Types** | |
| below college | 0.22 |
| non-elite college/university (ref.) | 0.70 |
| elite national university | 0.08 |

# Work Experience and Work Characteristics

| | |
|---|---|
| **Working experience** | |
| ever worked | **0.71** |
| **Current job characteristics** | |
| **years** in current job | 4.7 |
| **major-related** to current job: unrelated **(ref.)** | 0.43 |
| major-related to current job: partially related | 0.37 |
| major-related to current job: completely related | 0.20 |
| **size of company** (number of employments in hundred) | **3.4** |
| **workplace**: Keelung, Taipei city, New Taipei city **(ref.)** | 0.70 |
| workplace: Taoyuan city, Hsinchu city | 0.08 |
| workplace: From Miaoli to Pingtung | 0.04 |
| workplace: Eastern part of Taiwan | 0.15 |
| workplace: Flexible workplace or working abroad | 0.03 |

# Regression results:
## School and Labor Participation (ref. non-elite college)

| VARIABLES | Earnings | | ln (earnings) | | ln (wage) | |
|---|---|---|---|---|---|---|
| | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| **Below College** | -0.6 | 1.9 | -0.029 | 0.016 | -0.082*** | -0.038 |
| | (1.3) | (1.3) | (0.022) | (0.023) | (0.024) | (0.025) |
| **Elite University** | 14.7*** | 11.6*** | 0.210*** | 0.153*** | 0.202*** | 0.148*** |
| | (2.9) | (2.9) | (0.036) | (0.037) | (0.036) | (0.037) |
| **Lambda** | | 4.2 | | 0.044 | | 0.040 |
| | | (5.8) | | (0.092) | | (0.098) |
| **Test score** | | **0.1*** | | **0.001*** | | **0.001*** |
| | | (0.0) | | (0.000) | | (0.000) |
| **Self-esteem** | | 0.2 | | 0.003 | | 0.003 |
| | | (0.1) | | (0.002) | | (0.002) |

- **Control variables:** female, married, had kid, health status, Dad's and Mom's educational levels, previous working experience, tenured with current job, number of employees of current company, locations of the current company, graduate

- **Reference group: non-elite college**; ***p<0.01, **p<0.05, p*<0.1(two-sided)

# Regression results:
# Differences in labor market outcomes among college groups

| VARIABLES | Earnings | | ln (earnings) | | ln(wage) | | Job satisfaction | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| **Below College** | -0.6 | 1.9 | -0.029 | 0.016 | -0.082*** | -0.038 | 0.088 | **0.114*** |
| | (1.3) | (1.3) | (0.022) | (0.023) | (0.024) | (0.025) | (0.061) | (0.063) |
| **Elite College** | 14.7*** | 11.6*** | 0.210*** | 0.153*** | 0.202*** | 0.148*** | 0.106 | 0.073 |
| | (2.9) | (2.9) | (0.036) | (0.037) | (0.036) | (0.037) | (0.080) | (0.083) |
| **Lambda** | | 4.2 | | 0.044 | | 0.040 | | -0.464* |
| | | (5.8) | | (0.092) | | (0.098) | | (0.260) |
| **Test score** | | 0.1*** | | 0.001*** | | 0.001*** | | -0.001 |
| | | (0.0) | | (0.000) | | (0.000) | | (0.001) |
| **Self-esteem** | | 0.2 | | 0.003 | | 0.003 | | 0.006 |
| | | (0.1) | | (0.002) | | (0.002) | | (0.005) |

- **Control variables:** female, married, had kid, health status, Dad's and Mom's educational levels, previous working experience, tenured with current job, number of employees of current company, locations of the current company, graduate

- **Reference group: non-elite college**; ***p<0.01, **p<0.05, p*<0.1(two-sided)

# School and Labor Participation  (ref. private university)

| VARIABLES | (1) Salary/M | (2) log(earnings) | (3) Salary/H | (4) Manager | (5) Job Sat. |
|---|---|---|---|---|---|
| **Below College** | -0.4 | -0.035 | -0.081*** | **-0.067*** | **0.122*** |
| | (1.4) | (0.023) | (0.025) | (0.026) | (0.062) |
| **National University** | 0.9 | 0.040* | 0.052** | **-0.063**** | **0.153**** |
| | (1.4) | (0.024) | (0.024) | (0.028) | (0.064) |
| **Elite Nat'l University** | 14.7*** | 0.219*** | 0.206*** | -0.055 | **0.160**** |
| | (2.9) | (0.037) | (0.037) | (0.038) | (0.079) |

- **Control variables:** female, married, had kid, health status, Dad's and Mom's educational levels, previous working experience, tenured with current job, number of employees of current company, locations of the current company, graduate

- **Reference group:** private college; ***p<0.01, **p<0.05, p*<0.1(two-sided)

# **Occupational Outcome**--Education and Work

☐ Better family background ➔ enter elite university ➔ higher paid work

…高教學費補貼政策或有財富逆分配之虞…

☐ Private univ.➔ more likely to be in management *but* w/ lower salary and less job satisfaction

 …management experience may or may not benefit future promotion? enhance occupational competitiveness?......

TYP

# Data Release

**TYP Phase I (Adolescence)**

    **J1** : W1-W8 + P 4waves + T 3 waves (15 waves)

    **J3** : W1-W7 + P 4waves + T 1 wave (12 waves)

**TYP Phase II (Adults)**

    TYP2011

    TYP2014

    TYP2017

*apply* to the survey center, Academia Sinica (SRDA)

Thank you

Gracias

Merci Beaucoup

Dankeschön

謝謝您！