

統計與生活

第一單元：資料哪裡來？

授課教師：國立臺灣大學政治學系 洪永泰 教授



【本著作除另有註明外，採取創用CC
「姓名標示—非商業性—相同方式分享」臺灣3.0

版授權釋出】

1

資料從哪裡來？

| 資料性質 | 特徵 | 推論效度 | 例子 |
|-------|-------------------|------|-------------|
| 觀察性資料 | 順其自然 (不改變自然世界) | 相關分析 | 民意調查、田野調查 |
| 實驗性資料 | 操縱自然 (改變自然世界) | 因果分析 | 廣告效果測試、新藥測試 |



觀察性資料

對象：

母體 population

樣本 sample

普查 census

抽樣調查 sample survey

政府部門 (<http://www.dgbas.gov.tw>)

普查：每十年一次的戶口及住宅普查

每五年一次的工商及服務業普查

每五年一次的農林漁牧業普查

抽樣：人力資源調查（就業與失業）

物價調查（物價指數）

家庭收支調查

政府公務統計資料庫

國科會社會科學研究中心

(<http://ssrc.sinica.edu.tw/ssrc-home/>)

企業：

電視收視率調查（每分鐘）

AGB Nielsen Media Research

學術界：

社會變遷基本調查（中研院，每年）

臺灣選舉與民主化研究（TEDS，每年）

媒體：

總統、縣市長施政滿意度調查

資料是什麼樣子？

| 學號 | 姓名 | 最後成績 | 期中考分數 | 期末考分數 |
|-----------|-----|------|-------|-------|
| B91101043 | 林** | 76 | 74 | 61 |
| B89302103 | 范** | 11 | 14 | 19 |
| B91302120 | 白** | 34 | 77 | 59 |
| B91302143 | 施** | 60 | 17 | 62 |
| B92104011 | 陳** | 77 | 64 | 58 |
| B92104017 | 吳** | 68 | 55 | 59 |
| B92104020 | 麥** | 76 | 62 | 70 |
| B92302102 | 楊** | 60 | 46 | 15 |
| B92302113 | 唐** | 81 | 91 | 56 |



| county | townid | town | b95dpp r | b98dpp r | bo1dppr | bo4dpp r | bo8dpp r | b12dppr |
|--------|--------|------|-------------|-------------|---------|-------------|-------------|---------|
| 新北市 | 101 | 板橋區 | 32.00 | 30.28 | 35.12 | 36.90 | 42.14 | 44.31 |
| 新北市 | 102 | 三重區 | 40.80 | 39.49 | 45.95 | 44.57 | 48.78 | 50.99 |
| 新北市 | 103 | 中和區 | 22.78 | 27.35 | 23.73 | 33.17 | 32.71 | 37.64 |
| 新北市 | 104 | 永和區 | 21.12 | 25.12 | 21.15 | 28.09 | 0.00 | 27.57 |
| 新北市 | 105 | 新莊區 | 33.63 | 32.96 | 38.40 | 41.89 | 46.78 | 46.38 |
| 新北市 | 106 | 新店區 | 20.83 | 20.73 | 21.94 | 21.72 | 26.38 | 31.03 |
| 新北市 | 107 | 樹林區 | 33.13 | 37.74 | 28.60 | 31.14 | 47.98 | 45.45 |
| 新北市 | 108 | 鶯歌區 | 25.67 | 23.82 | 26.23 | 36.08 | 46.16 | 46.74 |
| 新北市 | 109 | 三峽區 | 28.30 | 29.14 | 24.93 | 30.24 | 45.24 | 42.50 |
| 新北市 | 110 | 淡水區 | 28.21 | 22.06 | 27.86 | 33.15 | 38.19 | 40.74 |

數據的展示

1. 楊同學昨天考試考了 58 分
2. 我是台大學生，每個月房租不算，我花 5500 元
3. 王太太剛產下一名女嬰，重量是 3485 公克
4. 從一百年來嫁妝的變遷解析中國婦女地位的變化
5. 縣市長的施政滿意度

兩個變數的關係

相關？

因果？

1. 老師加薪 與 酒吧生意興旺
2. 阿扁選舉得勝 與 廢票率揚升
3. IQ 與 婚姻：嫁個笨笨的先生有福了
4. 政大學生大學入學考試成績：英文 與 數學
5. 抽煙 與 癌症

線性相關？

1. 教育程度與收入？
2. IQ 與數學成績？
3. 酒量與業績？
4. 包裝顏色與銷售量？
5. 性別與抽煙？
6. 血型、星座與婚姻？
7. 來電？

版權聲明

| 頁碼 | 作品 | 版權標示 | 作者 / 來源 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|---|--------|-------------|--------|---------|---------|-------------------|---------|-----------|---------|------------------|-----------|-------------|---|---------------------|-------|-----------|-------|-------|-----|-----|-----------|-------|-------|-------|-------|-----------|-------|-----|-----|-----|-----------|-------|-------|-------|-------|-----------|-----|-----|-----|-------|-----------|-------|-------|------|-------|-----------|-----|-----|-------|-------|---|---------------------|-------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|---|---------------------|
| 2 | <table border="1"> <thead> <tr> <th>資料性質</th> <th>特徵</th> <th>推論強度</th> <th>例子</th> </tr> </thead> <tbody> <tr> <td>觀察性資料</td> <td>順其自然 (不改變自然世界)</td> <td>相關分析</td> <td>民意調查、田野調查</td> </tr> <tr> <td>實驗性資料</td> <td>操縱自然 (改變自然世界)</td> <td>因果分析</td> <td>廣告效果測試、新藥測試</td> </tr> </tbody> </table> | 資料性質 | 特徵 | 推論強度 | 例子 | 觀察性資料 | 順其自然 (不改變自然世界) | 相關分析 | 民意調查、田野調查 | 實驗性資料 | 操縱自然 (改變自然世界) | 因果分析 | 廣告效果測試、新藥測試 |  | 國立臺灣大學 政治學系 洪永泰 教授。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 資料性質 | 特徵 | 推論強度 | 例子 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| B91101043 | 林** | 76 | 74 | 61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B89502103 | 范** | 11 | 14 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B91302120 | 白** | 34 | 77 | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B91302143 | 張** | 60 | 17 | 62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B92104011 | 陳** | 77 | 64 | 58 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B92104017 | 張** | 68 | 55 | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B92104020 | 廖** | 76 | 62 | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B92302102 | 楊** | 60 | 46 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B92302113 | 廖** | 81 | 91 | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 新北市 | 102 | 三重市 | 40.80 | 39.49 | 45.95 | 44.57 | 48.78 | 50.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 新北市 | 104 | 永和市 | 21.12 | 25.12 | 21.15 | 28.09 | 0.00 | 27.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 新北市 | 105 | 新莊市 | 33.63 | 32.96 | 38.40 | 41.89 | 46.78 | 46.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 新北市 | 106 | 新店市 | 20.88 | 20.73 | 21.94 | 21.72 | 26.38 | 31.03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 新北市 | 107 | 樹林鎮 | 33.13 | 37.74 | 28.60 | 31.14 | 47.90 | 45.45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 新北市 | 108 | 鶯歌鎮 | 25.67 | 23.82 | 26.23 | 36.08 | 46.16 | 46.74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 新北市 | 109 | 三峽鎮 | 28.30 | 29.14 | 24.93 | 30.24 | 45.24 | 42.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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