Does Strict Liability Lead to Defensive Medical Behavior?

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Outline

- 1. Economic Analysis of Strict Liability
- 2. Literatures on defensive medicine
- 3. Leading cases and opinions in Taiwan
- 4. Empirical strategy
- 5. Preliminary results
- 6. Conclusion
1. Economic Analysis of Strict Liability
The Essence of Tort Law

• Torts v.s Criminal Law

• Desirable behavior but with

A. Optimal **Level of Care**
B. Optimal **Level of Activity**
Strict liability v.s Negligence

- Harm, Causality, Fault
- Residual liability allocation (Calabresi, 1970; Parisi, 2016)
- Product Liability and Inherently dangerous (Polinsky, 1982)
Shavell’s Classic Model (1987)

Table 2.1

<table>
<thead>
<tr>
<th>Level of care</th>
<th>Cost of care</th>
<th>Accident probability</th>
<th>Expected accident losses</th>
<th>Total accident costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
<td>15%</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>10%</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>High</td>
<td>6</td>
<td>8%</td>
<td>8</td>
<td>14</td>
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</table>
Shavell’s Classic Model (1987)

<table>
<thead>
<tr>
<th>Activity level</th>
<th>Total utility from activity</th>
<th>Total costs of care</th>
<th>Total expected accident losses</th>
<th>Social welfare</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>3</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>6</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
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<td>69</td>
<td>9</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td>12</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>70</td>
<td>15</td>
<td>50</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note:* Social welfare = total utility – total costs of care – expected accident losses.
Comparative static analysis (Parisi, 2016)

\[
S = V_T(W) + V_v(Z) - wzp(x, y)D - x - y
\]

\[
\frac{\partial S}{\partial x} = -wz \frac{\partial p}{\partial x} D - 1 = 0
\]

\[
\frac{\partial S}{\partial y} = -wz \frac{\partial p}{\partial y} D - 1 = 0
\]

\[
\frac{\partial S}{\partial w} = V'_T = zp(x, y)D
\]

\[
\frac{\partial S}{\partial z} = V'_v = wp(x, y)D
\]

Find out

\[x^* \ y^* \ (Level \ of \ Care) \ w^* \ z^* \ (Level \ of \ Activities)\]
2. Literatures on Defensive Medicine
Definition of defensive medicine by US Office of Technology Assessment (1993)

In order to reduce their exposure to malpractice liability

• 1. Do extra tests or procedures
• 2. Avoid certain patients or procedures
Kessler and McClellan (1996)

- **Direct Legal reforms (Caps):**
  - Medicare payments for hospital care declined 5% – 9%.
- **Indirect reforms:**
  - Medicare payments declined 1.8%.
- **Mortality was almost entirely unchanged in reform these states.**
Sloan (2009)

- Direct reforms did not significantly reduce payments for Medicare services in any specification.

- Indirect reforms reduced Medicare payments only in a specification based on any hospitalization, but not in analysis of hospitalization for each of four common chronic conditions.
Bernard Black (ALEA Working paper, 2018)

- 9 states that adopted damage caps during 2002-2005 (“New-Cap physicians”) performed fewer initial invasive coronary angiography and more non-invasive stress tests.

=> Physicians who face lower malpractice risk tolerate greater clinical uncertainty in testing for and treating CAD.
Challenging in these studies & My Approach

• 1. Data collection problem leads to controversial results
• 2. Spectrum of Liability

| Caps | Negligence | Strict Liability |

• Solution: Taiwan Dataset and Taiwan Legal Reform
3. Leading cases and opinions in Taiwan
台北地方法院85年度訴字
第5125號民事判決-馬偕肩難產案

• 超音波推算3500克
• 自然生產但永久肢殘
• 胎兒實際4198克，超過4000之剖腹產標準

• 台北地院：未事先推算嬰兒體重選擇自然生產合理無過失但有消費者保護法關於服務無過失責任之適用
• 「醫療服務...屬於人類基於求生存之目的，為滿足人類慾望之行為...其為消費為目的而接受服務之消費者甚明」

• 台灣高等法院87年度上字第151號民事判決採相同見解：
• 「消費者保護法第七條第一項規定...該項所稱之『服務』係指」消費者可能因接受該服務而陷於安全或衛生上之危險責任而言；因之...醫療服務自有本法之適用。
肯定說

• 1.朱柏松教授：只要提供之商品或服務具有危險性，並可能致他人於損害即可，不以商業行為為限。

• 2.黃立教授：消保法之立法目的在於保障消費者生活安全。由醫療機構負擔無過失賠償責任，並未發生迫使醫療機構無法經營，及醫師不敢輕易為病人治療，以免惹上訴訟之情事。消保法所稱之營業，並非以有營利目的者為限。
經濟分析式的學說見解解讀

3. 陳忠五教授：

A. 消保法目的在於利害關係人之間存有交易地位優劣或專業能力強弱不一之社經關係時，應傾向於將其認定為法律上的消費行為。病患與醫院診所間存在一種相當強烈之依賴從屬關係，從而病患請求提供醫療服務之行為，是一種消費行為應無疑義。

B. 適用消保法之主體應限於醫療院所

C. 區分「單純治療失敗」與「醫療意外事故」

抗生素無效 v.s 抗生素導致意外（Obligations of Means / Results）
否定說

1. 楊秀儀教授：台灣之醫療生態只有少數保險公司有提供醫療傷害責任險。在全民健保體制下，醫療院所並無自由調漲醫療費用之權限。如此將少看高風險病人以自保

2. 侯英冷教授：
   A. 醫療行為之複雜性，與商品製造的複雜性不可相提並論。
   B. 無過失責任之法理基礎在於分配公平正義。醫療行為並非單方利益所從事的危險活動而是互惠，並無立意與危險分配不公平之現象。
   C. 理性醫師放棄高風險行為以降低病人風險時，最終結果並未必有利於病人
否定說

• 4. 陳聰富教授：

A. 醫療行為之結果，充滿不確定性與危險性

B. 無保險制度分散，結果必定由病人承擔。

C. 防衛性醫療措施

D. 醫師須窮盡所有當時醫學之醫治方法，始可該當消保法所謂之「具有通常可合理期待之安全性」抗辯

=> 更多防衛性醫療
Legal reform in Taiwan related to malpractice

  (1997 Shoulder Dystocia – not foreseeable stillbirth)

- **2004. May**: Back to **Negligence**
  (Medical Care Act article 82)

- **Taiwan as a field experiment to test theoretical question**
Falsifiable Research Question

• Whether legal reforms decrease defensive medicine?
4. Empirical Strategy
Regression Discontinuity

PANEL A

PANEL B
The Difference-in-Differences (DID) estimator

- **Control group (factual outcome development without treatment)**
- **Treatment group (factual outcome development with treatment)**
- **Treatment group (hypothetical outcome development without treatment)**
- **Control group (factual outcome development without treatment)**
5. Preliminary Result
Measurements of Defensive Medicine

• 1. Days of hospitalization

• 2. Amounts of tests applied

• 3. Drug fee applied
RD test- Drug fee applied in Gynecology (0 = 2004 May)
Mortality rate:
Difference in Difference Design

- Using Nephrology/ Gynecology as the first difference
- Legal reform in 2004 as the second difference.
## Controlling variables (Levels and copayments)

<table>
<thead>
<tr>
<th>類型/Institution Class</th>
<th>西醫門診/Basic Co-payments</th>
<th>急診/Emergency Care</th>
<th>牙醫/Dental Care</th>
<th>中醫/Traditional Chinese Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>醫學中心/Medical Centers</td>
<td>210/With Referral</td>
<td>360/Without Referral</td>
<td>450</td>
<td>50</td>
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<tr>
<td>區域醫院/Regional Hospitals</td>
<td>140/With Referral</td>
<td>240/Without Referral</td>
<td>300</td>
<td>50</td>
</tr>
<tr>
<td>地區醫院/District Hospitals</td>
<td>50/With Referral</td>
<td>80/Without Referral</td>
<td>150</td>
<td>50</td>
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<tr>
<td>診所/Clinics</td>
<td>50/With Referral</td>
<td>50/Without Referral</td>
<td>150</td>
<td>50</td>
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<tr>
<td></td>
<td>(1) Testtotal RD</td>
<td>(2) Testtotal DID</td>
<td>(3) DRUG_FEE RD</td>
<td>(4) DRUG_FEE DID</td>
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<tr>
<td>----------------</td>
<td>------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>LReform</td>
<td>-0.00209***</td>
<td>-0.00370***</td>
<td>-16.69**</td>
<td>30.02***</td>
</tr>
<tr>
<td></td>
<td>(4.51)</td>
<td>(-12.45)</td>
<td>(3.18)</td>
<td>(11.11)</td>
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<td>LReform* Time</td>
<td>-0.00168***</td>
<td>-3.220***</td>
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<td></td>
<td>(-36.67)</td>
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<td>-11.22***</td>
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<tr>
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<td>(8.90)</td>
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<td>(-4.36)</td>
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<tr>
<td>Time</td>
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<td>0.000289***</td>
<td>-1.303*</td>
<td>-5.015***</td>
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<td>(10.27)</td>
<td>(11.46)</td>
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<td>Copayment</td>
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<td>0.000119***</td>
<td>2.334***</td>
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<td>(232.34)</td>
<td>(77.42)</td>
<td>(49.68)</td>
<td>(380.16)</td>
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<td>(-257.13)</td>
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<td>9949474</td>
<td>3984537</td>
<td>9949474</td>
</tr>
</tbody>
</table>

$t$ statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Conclusions(1)

• 1. The essence of tort law: Incentivize optimal care.

• 2. Why contradicts with Shavell’s conclusion?
Conclusions (2): Modifying Shavell’s Model

<table>
<thead>
<tr>
<th>Level of Care</th>
<th>Cost of Care</th>
<th>Accident Probability</th>
<th>Expected accident lost</th>
<th>Total accident cost</th>
<th>% of liability proved</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
<td>15%</td>
<td>15</td>
<td>15</td>
<td>100%</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>10%</td>
<td>10</td>
<td>13</td>
<td>80%</td>
</tr>
<tr>
<td>High</td>
<td>6</td>
<td>10%</td>
<td>8</td>
<td>16</td>
<td>50%</td>
</tr>
</tbody>
</table>

National Healthcare=>Public goods
Investing care to **minimize liability exposure** and **externalize cost of liability avoidance** to the public
Take Away

• 台灣的資料顯示，在運作良好的全國性健保制度下，嚴格責任無助於降低訴訟率以及醫療成效，只會迫使醫師將免於醫療責任的成本外部化給全民負擔。
Thank you for your attention!