Studio 1 – Foundation

Business Analytics Project

Assessment 3

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Investigation of Claim

Australia's private hospital insurance market is a crucial part of the healthcare system, providing coverage for a significant portion of the population. This market has gone through various changes and trends over the years, influenced by economic factors, policy adjustments, and consumer preferences.
The COVID-19 pandemic has had a significant impact on various sectors, including the healthcare and health insurance industries. This study aims to analyze the effects of the pandemic on the private hospital insurance market in Australia by focusing on three key areas. By examining data from before, during, and after the COVID-19 pandemic, we can uncover important trends and changes in consumer behavior and policy adoption.
Therefore, the investigation shows the market's current state and evolving dynamics by focusing on- the average payment made by patients across all services, hospital treatment coverage by age groups, and hospital treatment policies by type.

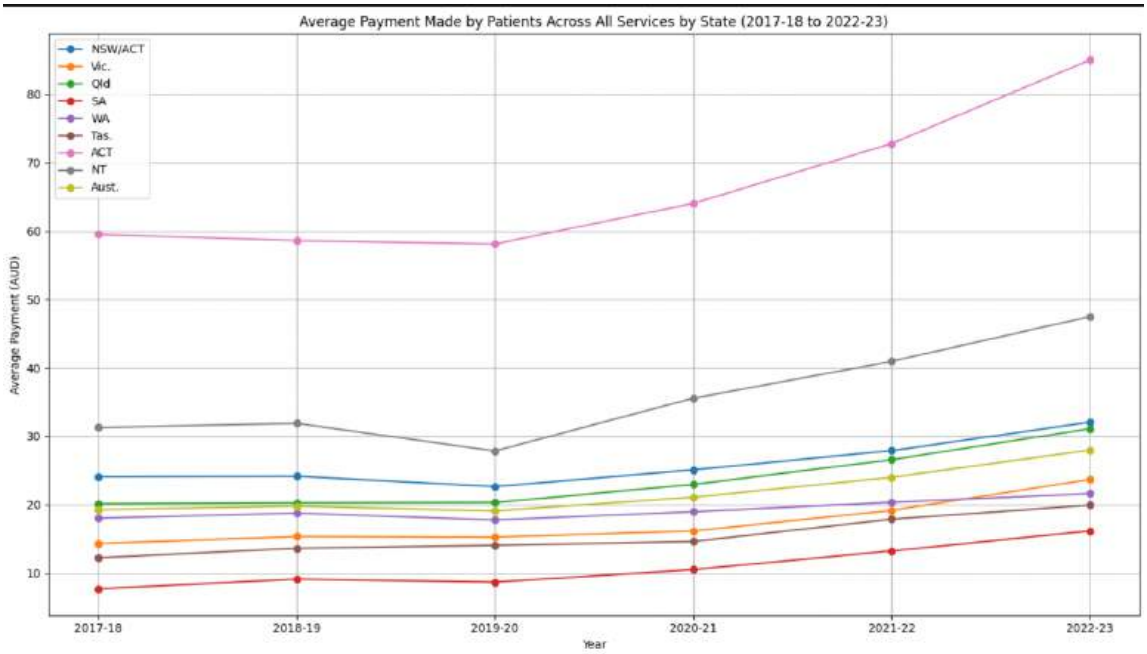
The following trends shown below will illustrate the current scenario and will contribute to the discussion of the claim:

1. ***Analysis of Average Payment Made by Patients Across All Services***

The mean amount paid by patients for all services offers an understanding of the financial impact on policyholders over time. Before the onset of COVID-19, between June 2018 and June 2019, there was a gradual uptick in mean payments, indicating a consistent escalation in healthcare expenses. For example, the mean payment in NSW/ACT rose from $24.09 to $24.17 during this period, and similar pattern were observed in other regions [1].

Throughout the COVID-19 pandemic, from June 2019 to June 2021, mean payments exhibited noticeable fluctuations. In 2020, there was a temporary decline in mean payments, likely due to reduced access to non-essential medical services during lockdowns and restrictions.

Post-COVID, from June 2021 to June 2023, mean payments continued to show significant growth, indicating the enduring effects of the pandemic on healthcare expenses. The economic repercussions of the pandemic, combined with heightened demand for healthcare services, resulted in increased out-of-pocket costs for patients. By June 2023, mean payments had reached new peaks, with NSW/ACT at $32.06 and ACT at $85.03.



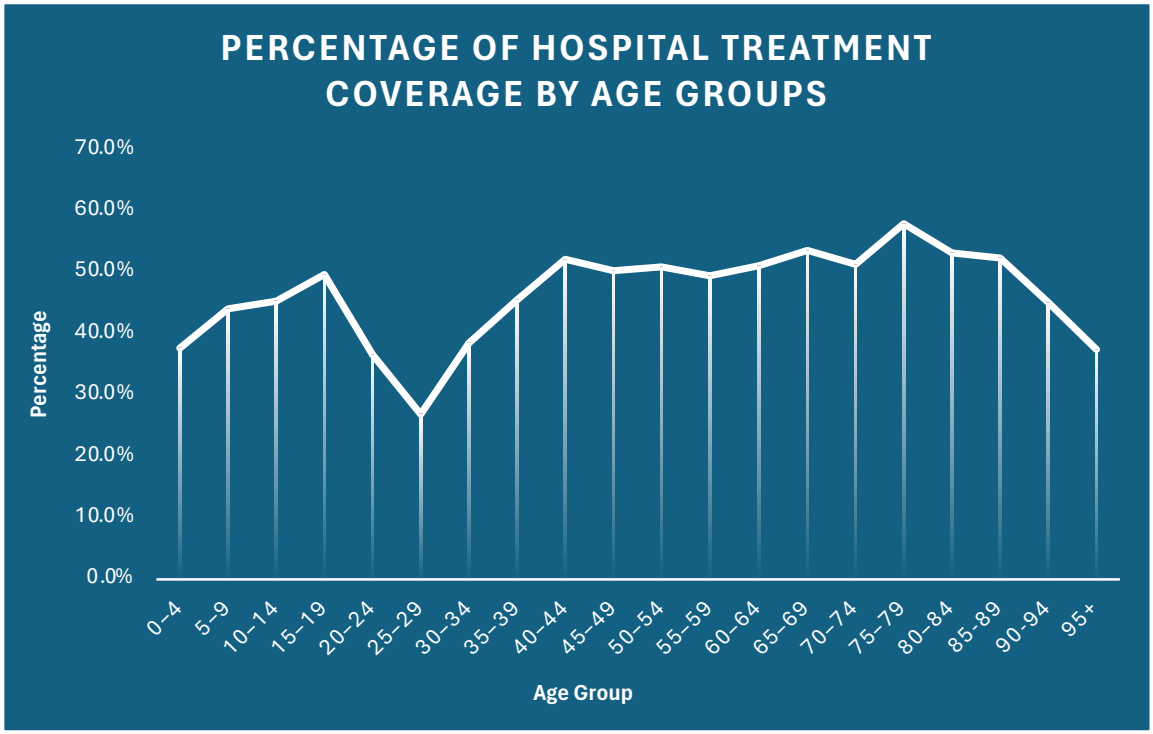
Source: Operations of private health insurers annual report data 2022-23

2. Hospital Treatment Coverage by Age Groups

Hospital treatment coverage by age group indicates the varying impact of the pandemic on different demographics. The pandemic had differing effects on coverage rates across age groups. Younger age groups (20-24 and 25-29) experienced a notable decrease in coverage, possibly due to financial constraints and the perception of lower health risks among younger individuals. For example, the coverage for the 20-24 age group dropped to approximately 36.44% in 2022-23. Conversely, older age groups (65+) either maintained or slightly increased their coverage rates, recognizing the heightened health risks associated with COVID-19.

From 2022, coverage rates began to recover post-COVID, particularly among middle-aged and older demographics. By 2023, the 75-79 age group reached

a coverage rate of 57.88%. However, younger age groups continued to lag, reflecting ongoing economic pressures and evolving priorities among young adults [2]. The data indicates that while the overall insurance market is rebounding, disparities in coverage persist, underscoring the need for targeted interventions to ensure comprehensive coverage across all age groups.



Source: Operations of private health insurers annual report data 2022-23

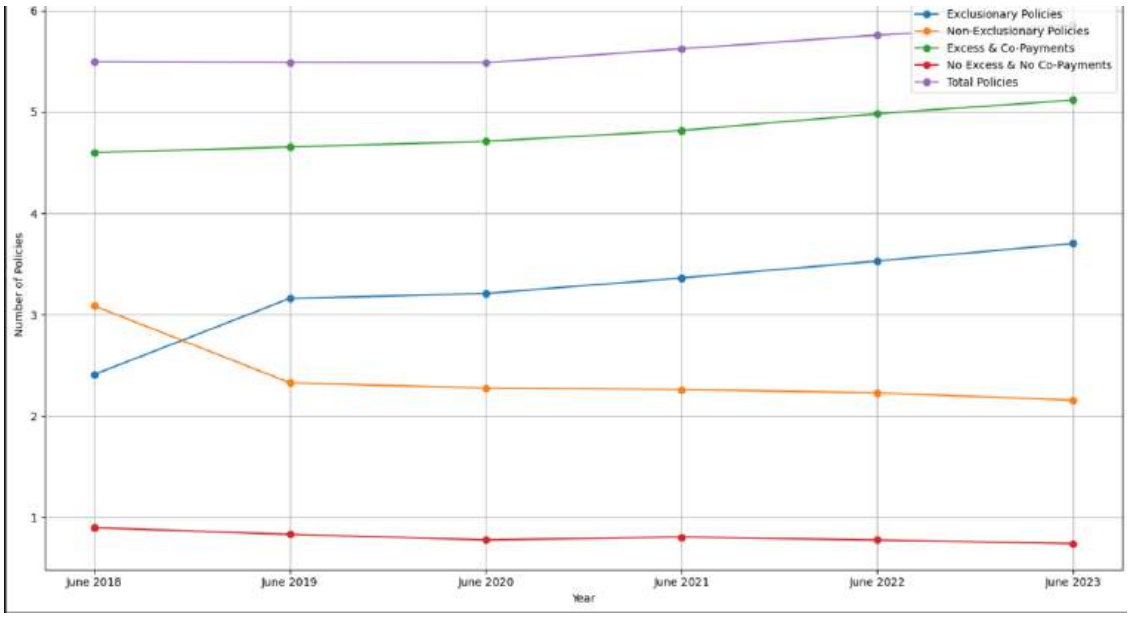
3. Hospital Treatment Policies by Type

Analysing hospital treatment policies based on type offers valuable insights into consumer preferences and changes in policies before, during, and after the pandemic. Prior to COVID, between June 2018 and June 2019, there was a consistent uptick in exclusionary policies, increasing from 2,409,862 to 3,161,221. This pattern suggests a growing inclination towards more budget-friendly plans with limited coverage.

During COVID, from June 2019 to June 2021, the adoption of exclusionary policies surged, reaching 3,362,658 by June 2021. The economic uncertainty and financial strain resulting from the pandemic likely led more consumers to choose exclusionary policies to manage expenses. Simultaneously, non-

exclusionary policies decreased from 2,328,172 in June 2019 to 2,260,856 in June 2021, indicating a shift towards more cost-effective coverage options.

After COVID, from June 2021 to June 2023, the trend of increasing exclusionary policies continued, reaching 3,702,386 by June 2023. Likewise, policies with excess and co-payments became more common, increasing from 4,817,498 in June 2021 to 5,118,011 in June 2023. This trend suggests consumers' increasing willing to share the cost burden in exchange for lower premiums, likely influenced by the financial repercussions of the pandemic.



Source: Operations of private health insurers annual report data 2022-23

Based on the above analysis, the assertion that the private hospital insurance market is declining can be REJECTED. The data indicates that while there are significant shifts in consumer behaviour and policy preferences, the overall market is expanding, with an increase in the number of policies and adjustments made to address the economic challenges brought about by the pandemic. These findings offer a comprehensive understanding of the changes in the private hospital insurance market due to the COVID-19 pandemic and emphasize potential areas for policy intervention to ensure fair and comprehensive coverage for all Australians.

Critical Analysis of Government Policy Responses

Response 1.

Provide a new subsidy to insurers for every policy they sell. The subsidy will be decreasing with age (i.e., the subsidy will be higher for younger people and lower for older people).

- **Policy Context**

The market for private hospital insurance in Australia has seen a decrease in purchases, especially among younger people. This has led to worries about a possible market 'death spiral,' where healthy, young individuals opt out, leading to higher premiums and further declines in coverage. The policy aims to encourage younger people to buy private hospital insurance by providing increased subsidies for younger policyholders [3].

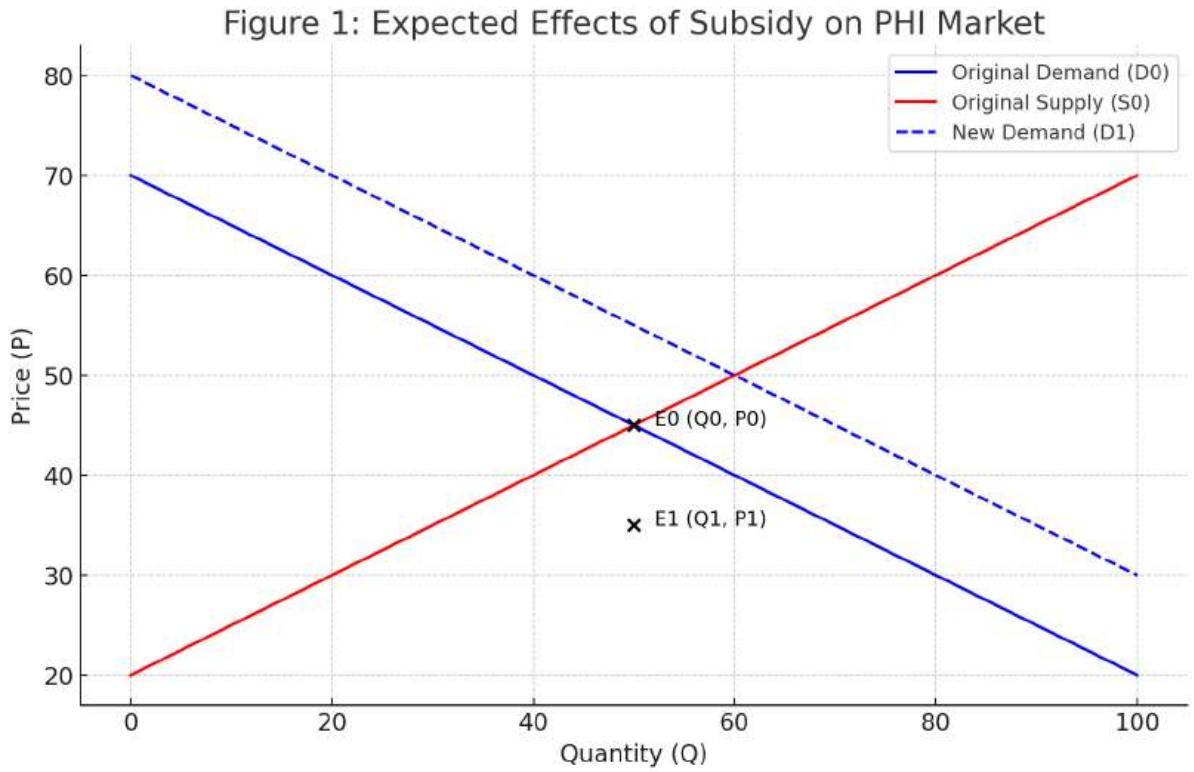
- **Supply, Demand, and Market Equilibrium**

Supply and Demand Framework:

a. *Subsidies decrease the price of private health insurance (PHI) for consumers, causing an increase in demand.*
b. *Supply Curve: Since subsidies target insurers, they reduce their costs, which could also lead to an increase in the supply if insurers pass on some of the cost savings to consumers through lower premiums.*

Market Equilibrium:

a. *Initial Equilibrium: (QO, PO) (original quantity and price)*
b. *New Equilibrium: (Q1, P1) (new quantity and price after the subsidy)*
c. *Demand Curve Shift: The subsidy makes PHI more affordable, especially for younger individuals, leading to an increase in the quantity demanded at every price level (shift from DO to D1).*
d. *Supply Curve Shift: If insurers lower premiums, the supply curve shifts from SO to S1.*



- ***Expected Quantitative Effects:***

Elasticity of Demand: The price elasticity of demand for private health insurance (PHI) falls within the range of -0.3 to -0.4. This indicates a moderate sensitivity to changes in price, suggesting that the subsidy is likely to have a noticeable effect on increasing PHI enrolment [5].

- ***Potential Effects on Related Markets:***

Public Health System: Increased uptake of PHI may alleviate strain on public hospitals by shifting patients to private healthcare, potentially reducing wait times and public healthcare spending [4].
Insurance Market: Offering higher subsidies to younger individuals may attract a healthier risk pool, stabilizing premiums and preventing adverse market conditions 'death spiral'.

- ***Winners and Losers:***

Winners:

a. *Younger individuals will enjoy reduced premiums because of higher subsidies.*

b. *Insurers will benefit from increased policy sales and potentially higher profits from a larger risk pool.*
c. *The public healthcare system will benefit from reduced patient load and expenditure.*

Losers:

a. *Older individuals will receive lower subsidies, leading to less significant reductions in their premiums.*
b. *Taxpayers will bear the cost of subsidies through government expenditure, which may necessitate higher taxes or resource reallocation.*

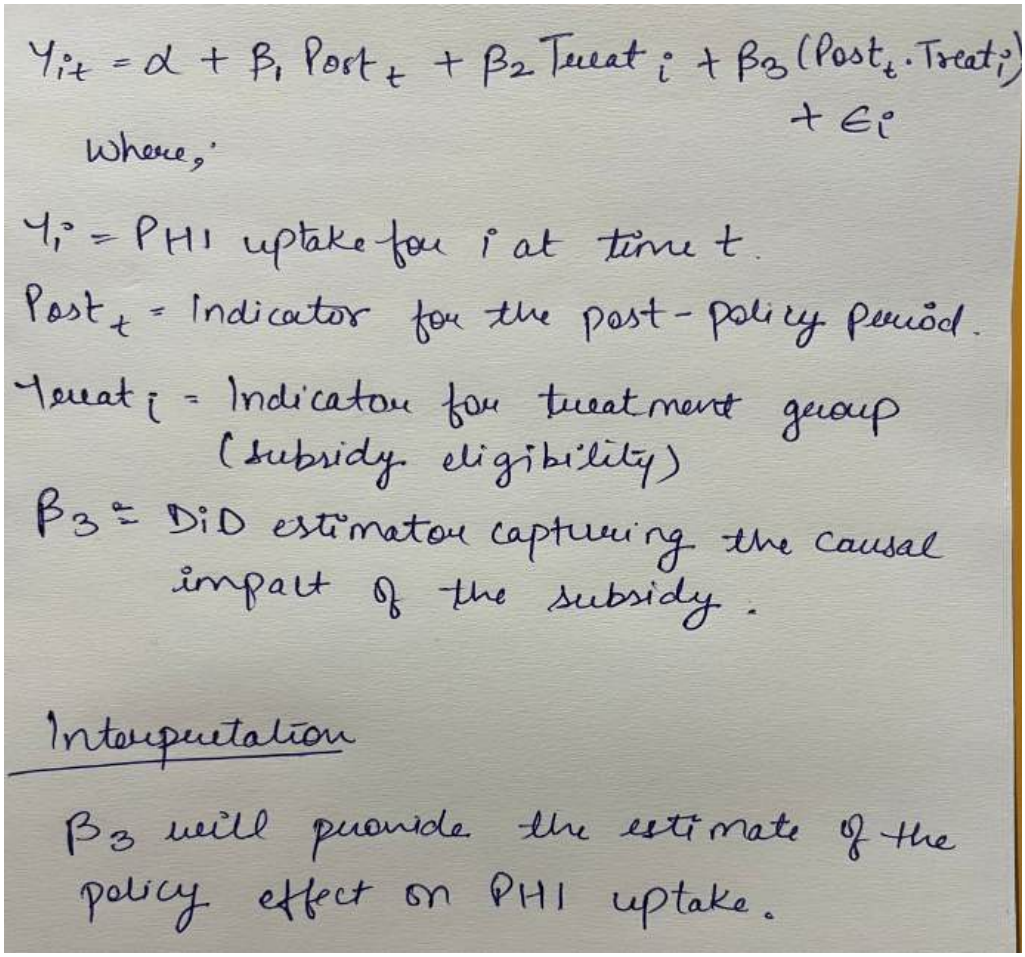
- ***Empirical Evidence and Expected Magnitudes***

Subsidies and Demand: Subsidies and Demand: According to Cheng (2014), a 30% rebate on private health insurance (PHI) premiums notably increased coverage. With elasticity estimates in mind, the new subsidies are likely to have a similar impact, particularly among younger individuals [5].

- ***Policy Analysis: Difference-in-Differences (DiD)***

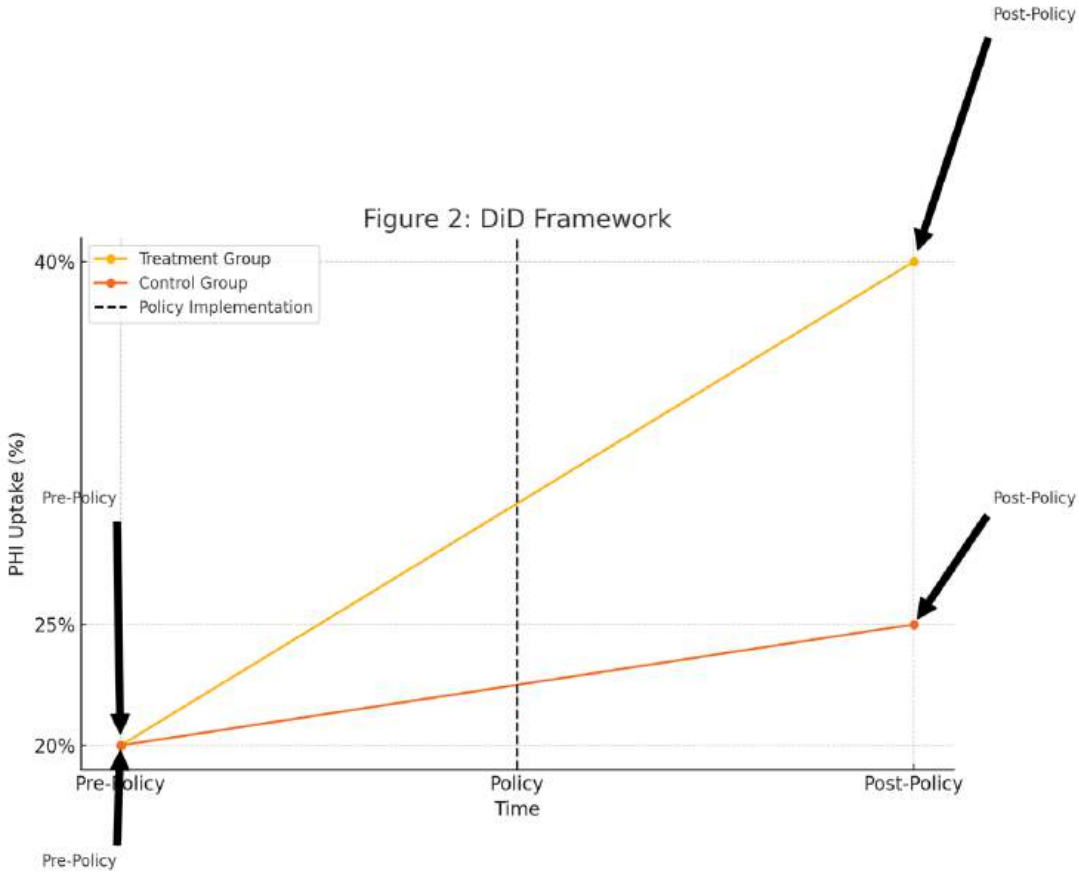
1. Treatment Group: Individuals eligible for the subsidy (younger population receiving higher subsidies).
2. Control Group: Individuals not receiving the subsidy or receiving lower subsidies (older population).
Outcome Variable: *PHI uptake (binary indicator of having PHI).*
Treatment Variable: *Subsidy eligibility (binary indicator based on age).*
DiD Estimator*: Interaction term between time (pre- and post-policy) and treatment (subsidy eligibility).*

- ***Equation:***



- ***Graphical Representation:***

This diagram illustrates the anticipated increase in PHI (private health insurance) enrolment for the treatment group (younger individuals receiving higher subsidies) in comparison to the control group (older individuals receiving lower or no subsidies) before and after the policy change.
This DiD (Difference in Differences) framework showcases the disparity in PHI enrolment between the treatment and control groups over time. The vertical dashed line represents the point of policy implementation, and the arrows indicate the pre- and post-policy periods for both groups.



- ***Conclusion***

Policy Response 1 is anticipated to substantially increase PHI uptake among younger individuals due to their higher elasticity of demand. This will lead to a rightward shift in the demand curve, resulting in an increase in the equilibrium quantity of PHI policies sold and potentially lower premiums. The public health system will benefit from reduced demand pressure, while insurers will profit from increased policy sales.

Response 2

Lower the threshold for the 1% Medicare levy surcharge – a tax penalty for people without private cover – from $93,000 to $50,000 for singles and from $186,000 to $100,000 for couples/families.

- ***Policy Context***

The private hospital insurance (PHI) market in Australia has experienced a decrease in participation, particularly among younger, healthier individuals. The government plans to boost PHI coverage by reducing the income

threshold for the Medicare levy surcharge (MLS), thereby encouraging more people to buy PHI to avoid the tax penalty [6].

- ***Supply, Demand, and Market Equilibrium***

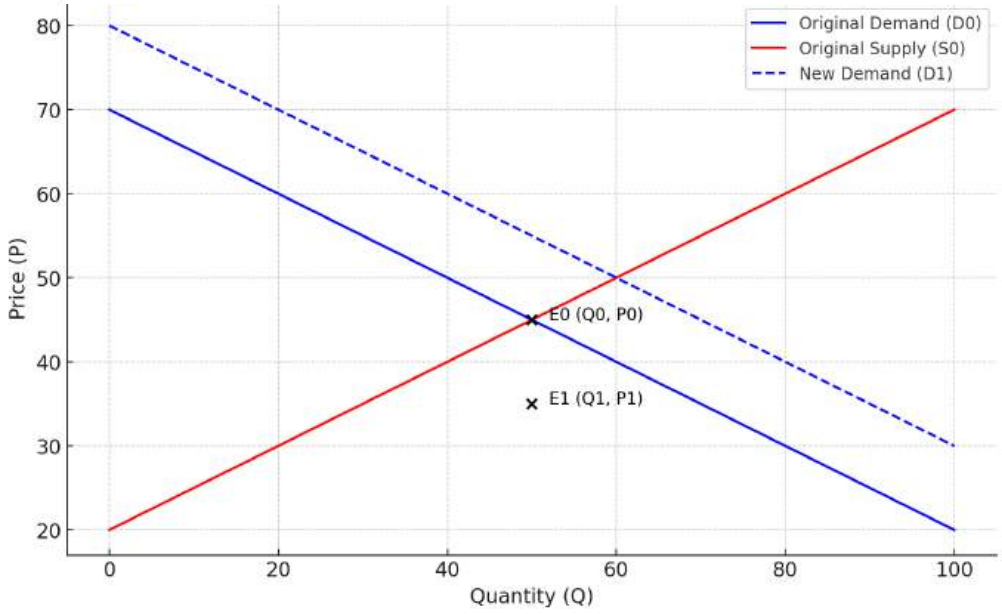
Supply and Demand Framework:

a. *MLS Reduction: Lowering the MLS threshold increases the cost of not having PHI for a larger segment of the population. This is expected to raise the demand for PHI as more individuals aim to avoid the surcharge.*
b. *Demand Curve Shift: The policy is anticipated to shift the demand curve for PHI to the right.*

Market Equilibrium:

a. *Initial Equilibrium: (QO, PO) (original quantity and price)*
b. *New Equilibrium: (Q1, P1) (new quantity and price post-MLS reduction)*
c. *Demand Curve Shift: The increased financial incentive to purchase PHI shifts the demand curve from DO to D1.*

Figure 3: Expected Effects of Lower MLS Threshold on PHI Market



- ***Expected Quantitative Effects:***

Magnitude of Change: Considering the elasticity, the reduction in MLS threshold is likely to have a noticeable impact on increasing PHI uptake, especially among middle-income earners now subject to the surcharge.

- ***Winners and Losers:***

Winners:

a. *Middle-Income Individuals now have a strong incentive to purchase PHI.*
b. *Insurers stand to benefit from increased policy sales.*
c. *Public Healthcare System stands to benefit from reduced patient load.*

Losers:

a. *Individuals Just Above New Thresholds face a new financial penalty, which may be challenging.*
b. *Taxpayers: The government may need to address any administrative costs associated with implementing and enforcing the new thresholds.*

- ***Empirical Evidence and Expected Magnitudes***

Medicare Levy Surcharge: Stavrunova and Yerokhin (2018) discovered that the MLS modestly increases PHI coverage. Lowering the income thresholds encourages a more significant population to purchase PHI, increasing overall coverage [7].

- ***Policy Analysis: Regression Discontinuity***

Cutoff Points: $93,000 to $50,000 for singles and $186,000 to $100,000 for couples/families.
***Outcome Variable**: PHI uptake (binary indicator of having PHI).*
***Running Variable**: Income level.*
***Treatment Assignment**: Based on whether an individual's income is above or below the new threshold.*

- ***Equation:***

$$Y_i = \alpha + \beta \cdot 1(x_i \geq c) + f(x_i - c) + \epsilon_i$$

Where,

Y_i = PHI uptake for individual (i)

X_i = Income level for i

c = Income cutoff (new threshold)

$1(x_i \geq c)$ = Indicator function for being above the cutoff

$f(x_i - c)$ = Functional form for the running variables

β = RD estimator capturing causal impact of the policy

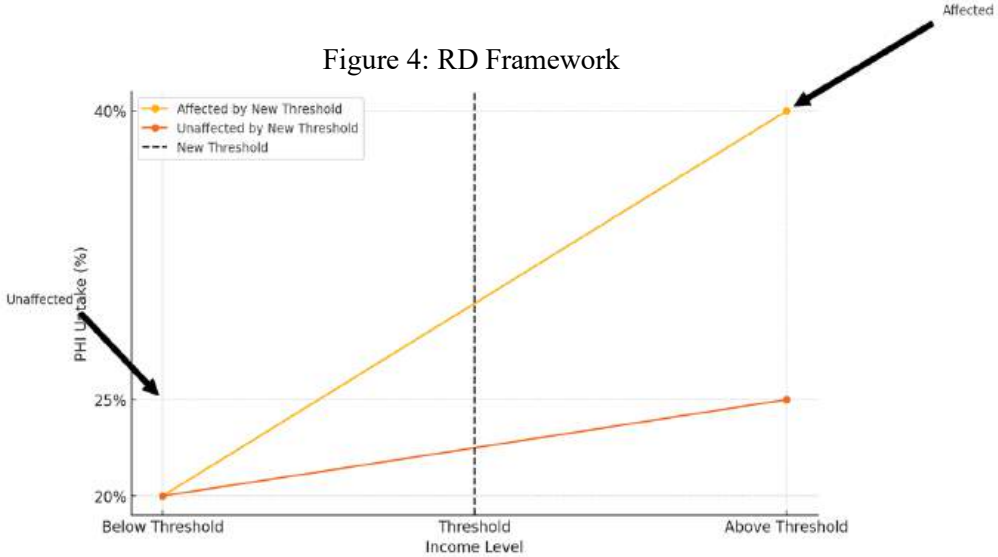
Interpretation

β provides the estimate of the policy's effect on PHI uptake for individuals around the threshold.

- ***Graphical Representation:***

The figure illustrates the anticipated rise in PHI uptake for individuals slightly above the new MLS thresholds as opposed to those not impacted by the new threshold before and after the policy change. The RD framework displays the disparity in PHI uptake between individuals below and above the new threshold. The vertical dashed line denotes the new income threshold for the MLS, with arrows indicating the groups impacted and unaffected by the new policy.

Figure 4: RD Framework



- ***Conclusion***

Lowering the Medicare levy surcharge threshold is expected to significantly increase PHI uptake among middle-income earners. This will shift the demand curve to the right, increasing the equilibrium quantity of PHI policies sold and potentially affecting premiums. The public health system will benefit from reduced demand pressure, while insurers will gain from increased policy sales.

Response 3

Implementing regulatory reforms to the production and supply of medical equipment, which are expected to lower the price of surgeries and hospital care.

- ***Policy Context***

The private hospital insurance (PHI) market in Australia has seen a decrease in participation, especially among younger, healthier people. The government's goal is to make PHI more appealing and affordable by lowering overall healthcare costs through the reduction of medical equipment expenses [8].

- ***Supply, Demand, and Market Equilibrium***

Supply and Demand Framework:

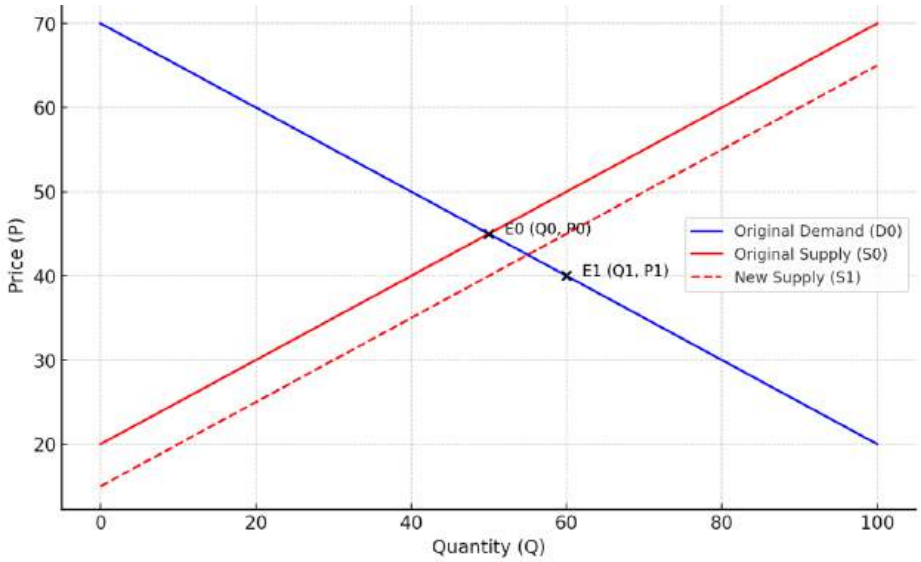
a. *Supply Side: Reducing the cost of medical equipment leads to a decrease in the cost of providing medical services, effectively causing the supply curve for medical care to move to the right.*
b. *Demand Side: With the decrease in medical care costs, insurance companies can offer reduced premiums, leading to an increase in the demand for PHI.*

Market Equilibrium:

a. *Initial Equilibrium: (QO, PO) (original quantity and price)*
b. *New Equilibrium: (Q1, P1) (new quantity and price post-reform)*

c. *Supply Curve Shift: It is anticipated that the policy will move the supply curve for medical care from SO to S1.*

Figure 5: Expected Effects of Lower Medical Equipment Costs on PHI Market



- ***Winners and Losers:***

Winners:

a. *Consumers will experience the advantage of reduced healthcare costs and possibly lower insurance premiums.*
b. *Insurers will profit from an increase in policy sales due to more affordable premiums.*
c. *Public Healthcare System will benefit from a decrease in patient load and spending.*

Losers:

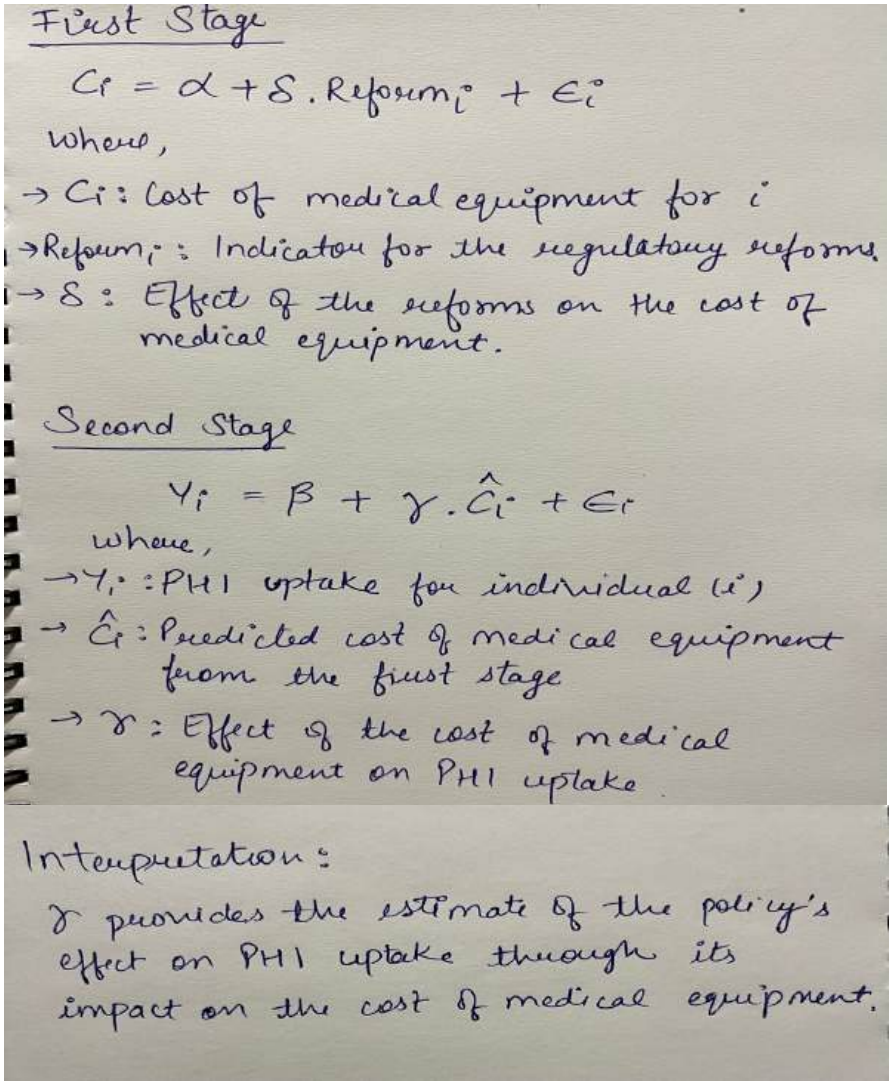
a. *Medical Equipment Manufacturers might encounter decreased revenues due to reduced prices.*
b. *If the government subsidizes the cost reductions, taxpayers may end up shouldering the financial burden.*

- ***Policy Analysis: Instrumental Variables (IV)***

1. *Instrument: Regulatory reforms that reduce the cost of medical equipment.*
2. *First Stage: Regress the endogenous variable (cost of medical equipment) on the instrument (regulatory reforms).*

3. *Second Stage: Use the predicted values from the first stage to estimate the effect on the dependent variable (PHI uptake) [11].*

- ***Equation:***



- ***Graphical Representation:***

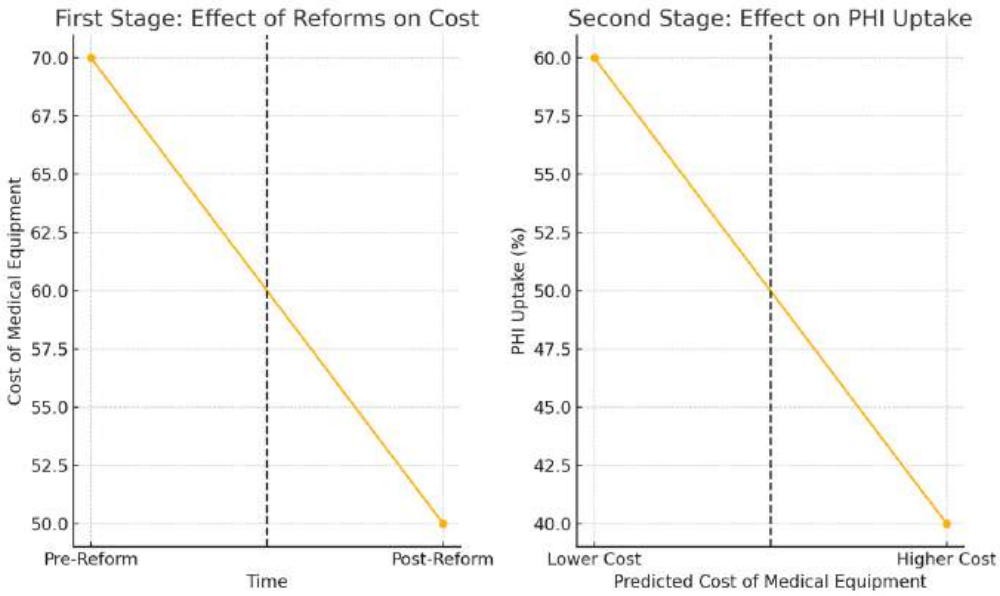
First Stage

Effect of Regulatory Reforms on Cost of Medical Equipment: This subplot illustrates the decrease in medical equipment costs before and after the implementation of regulatory reforms. The vertical dashed line indicates when the policy was implemented.

Second Stage:

Effect of Predicted Cost on PHI Uptake: This section shows the connection

between the predicted cost of medical equipment (derived from Stage One) and the adoption of PHI. The vertical dashed line represents the predicted cost from Stage One, emphasizing how changes in medical equipment costs affect PHI uptake.



- ***Conclusion***

  Introducing changes to regulations to decrease the expense of medical equipment is anticipated to have a substantial impact as this will cause the supply curve for medical care to shift to the right, leading to a decrease in the equilibrium price of private health insurance policies and an increase in the quantity sold. The public health system will experience relief from reduced demand pressure, while insurance providers and consumers will benefit from more reasonable premiums and healthcare expenses.

Recommendations

Based on the critical analyses of three policy responses aimed at enhancing the sustainability of the private hospital insurance (PHI) market in Australia, it is evident that each response has its unique benefits and challenges. However, to enhance the sustainability of the private hospital

insurance market, we recommend a combination of the second and third policy responses: lowering the threshold for the Medicare levy surcharge (MLS) and implementing regulatory reforms to reduce the cost of medical equipment.

Recommendation for Policy Response 2: Lowering the MLS Threshold

Lowering the MLS threshold from $93,000 to $50,000 for singles and $186,000 to $100,000 for couples/families would create a significant incentive for middle-income earners to invest in PHI. This policy builds on the existing MLS framework, which has shown a moderate effect on increasing PHI uptake. By broadening the pool of individuals subject to the surcharge, the government can push for higher PHI coverage rates. This surge in uptake can alleviate the strain on the public health system by shifting patients to private care, potentially reducing wait times and public healthcare expenditure [10].

Recommendation for Policy Response 3: Reducing the Cost of Medical Equipment

Another effective strategy is to implement regulatory reforms to lower the cost of medical equipment. By reducing the production and supply costs of medical equipment, the overall cost of healthcare can be decreased. This reduction in healthcare costs allows insurance companies to offer lower premiums, making PHI more affordable and attractive to consumers. The resulting increase in PHI uptake will further alleviate the burden on the public health system. This policy option addresses both the supply and demand sides of the market, ensuring a balanced and sustainable approach to enhancing PHI coverage.

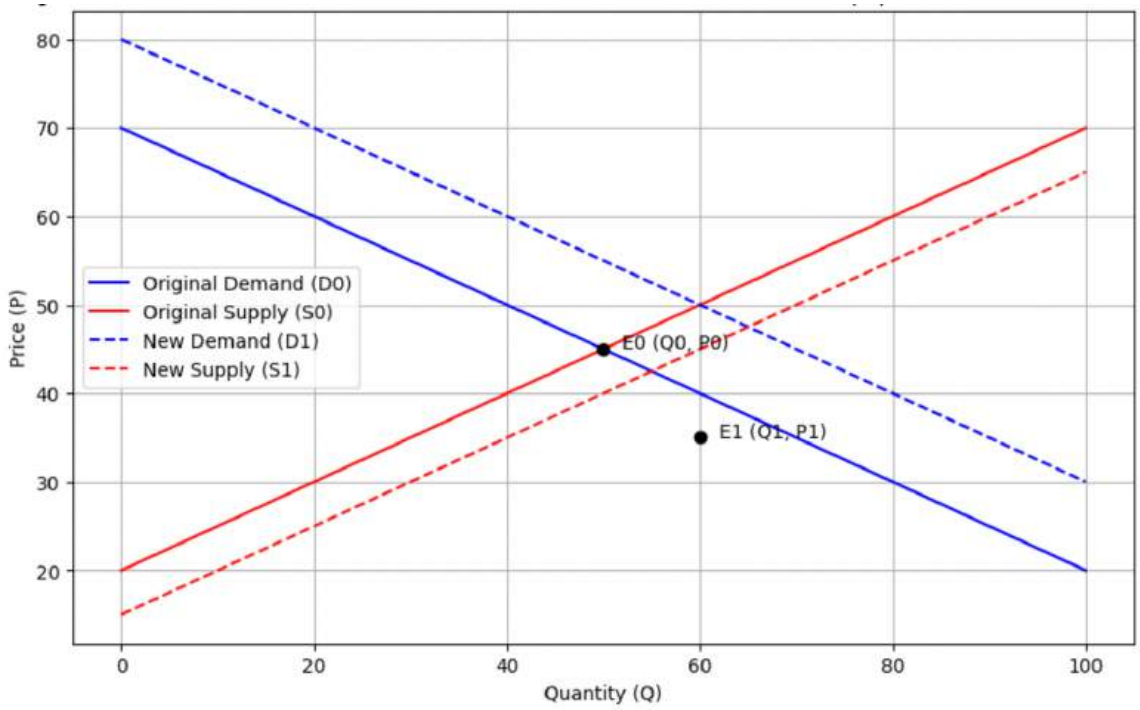
Combining Policy Responses 2 and 3

The most comprehensive solution is a combined approach of lowering the MLS threshold and reducing the cost of medical equipment. This strategy addresses the affordability of PHI from multiple angles: it increases the financial incentive for individuals to purchase PHI through the MLS while simultaneously making PHI more affordable by lowering healthcare costs.

This dual approach maximizes the potential for increasing PHI uptake and stabilizing the market.

In conclusion, the government should pursue a combined policy approach of lowering the MLS threshold and implementing regulatory reforms to reduce the cost of medical equipment. This recommendation is based on the economic analyses of the expected impacts of each policy option on the PHI market. By adopting these policies, the government can achieve its goal of delivering high-quality healthcare at the lowest possible cost, ensuring a sustainable and efficient healthcare system for all Australians.

Figure 7: Combined Effects of Lower MLS Threshold & Lower Medical Equipment Costs on PHI Market



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