

Pollutant-Specific Health and Economic Burdens of Ambient Air Pollution in Taiwan

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Outline

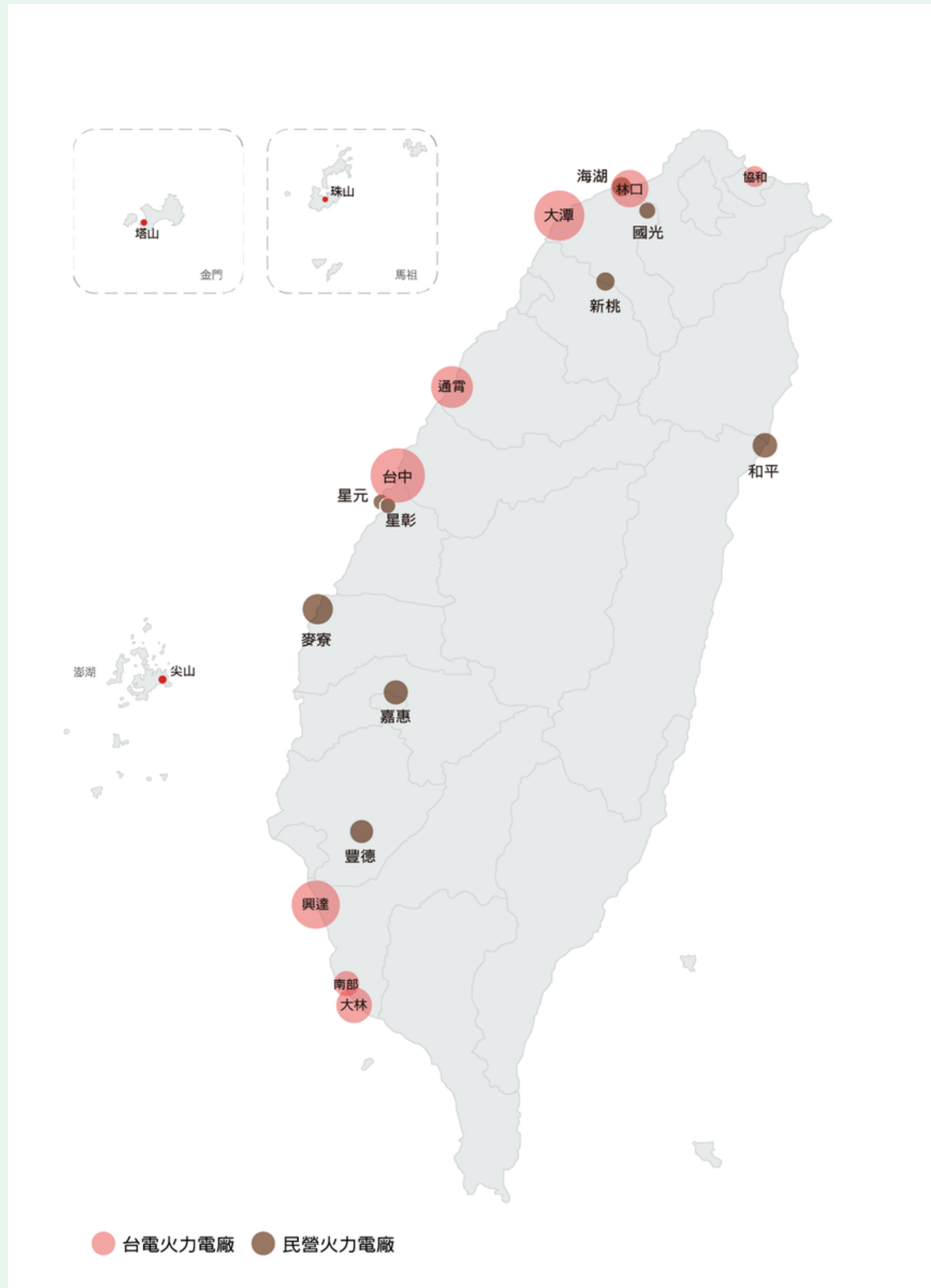


1. WHAT and WHY
2. HOW
3. Health Impacts
4. Health Insurance Burden
5. Special Cases

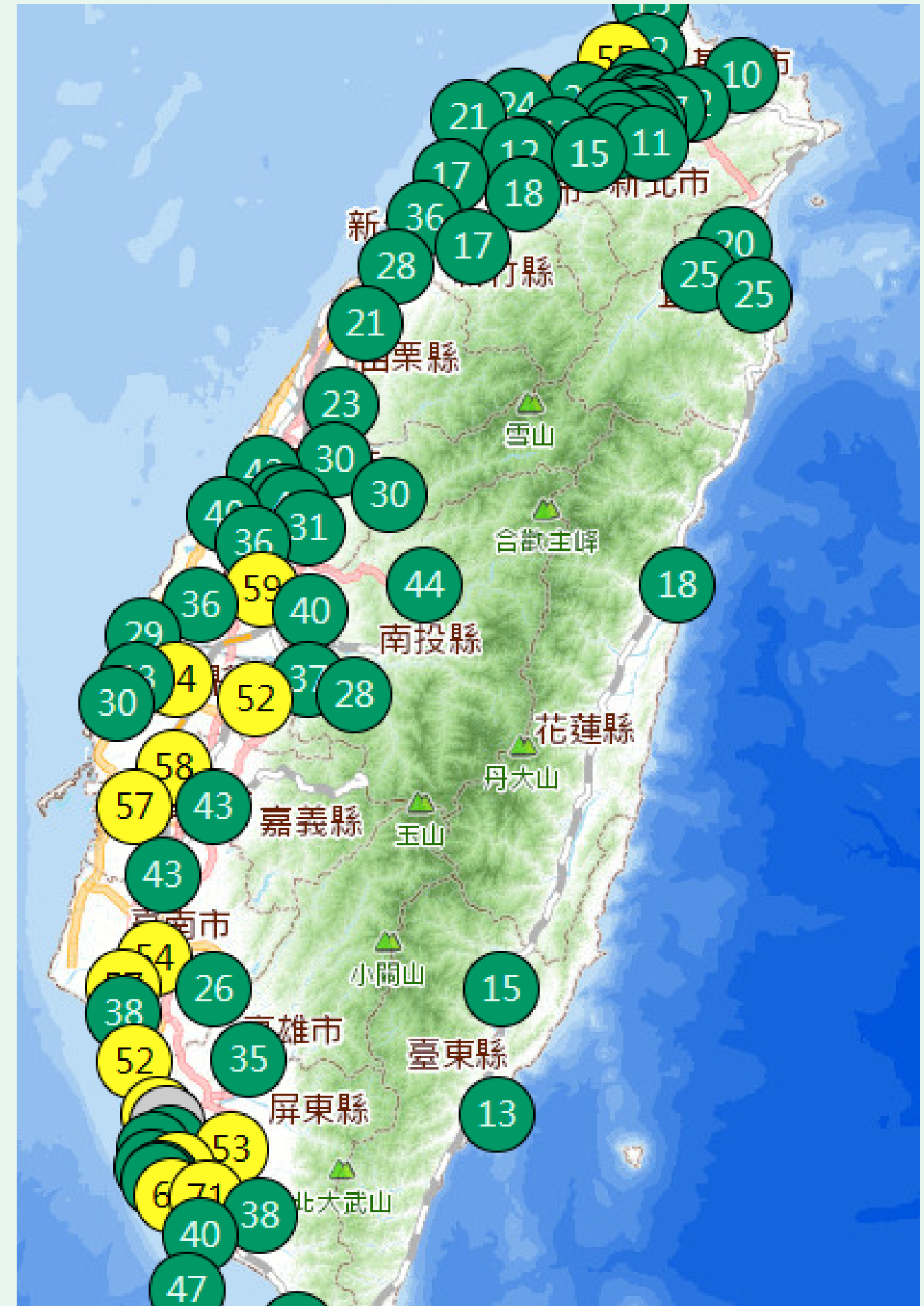


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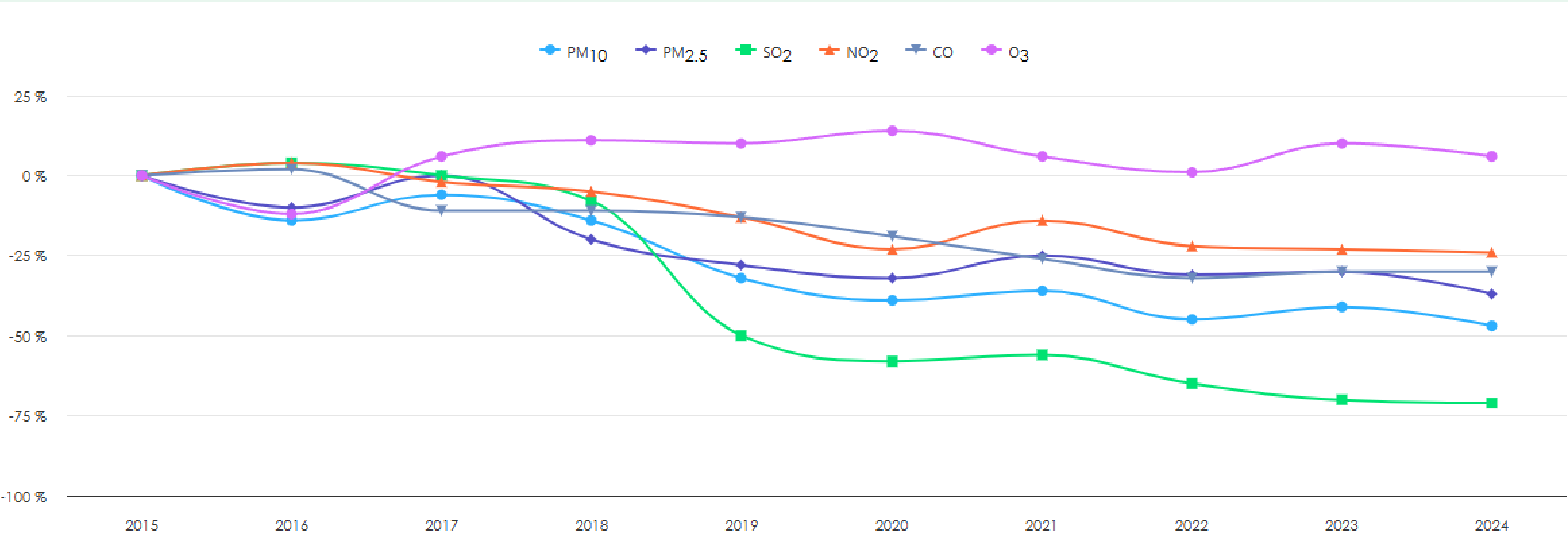
Power Station



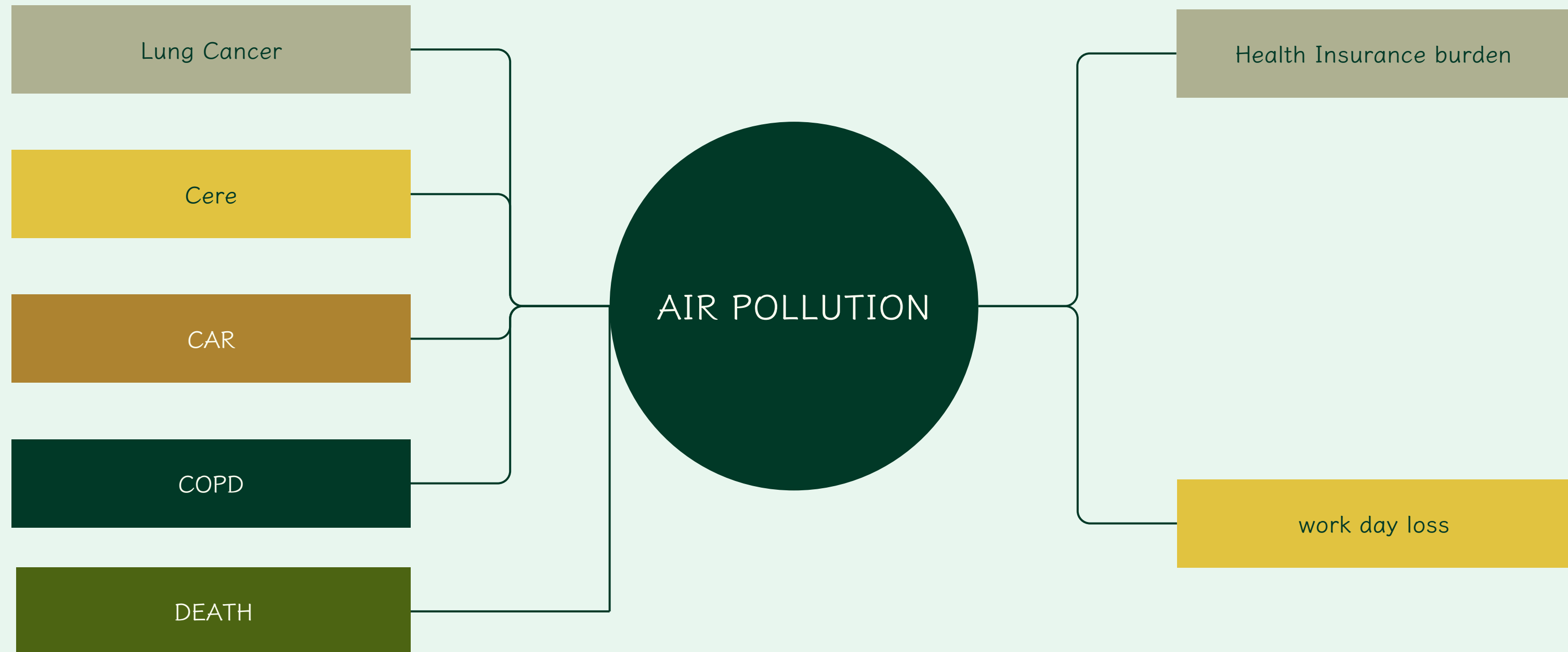
Air Pollution Monitoring Station



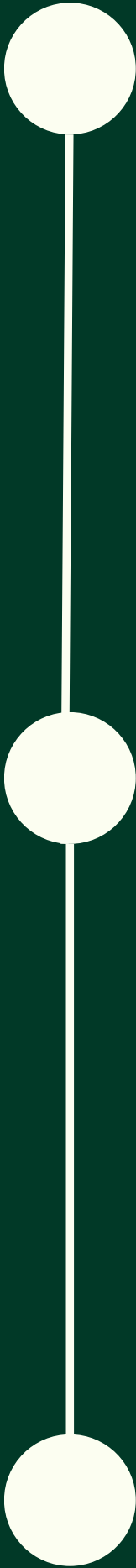
Taiwan's Highest Pollutant Concentration: Yearly Trends



Health Outcomes & Economic Burden



Study Objective



HEALTH IMPACTS OF AIR
POLLUTION

POTENTIAL IMPROVEMENTS
FROM GOVERNMENT
TARGETS

MONETIZED BENEFITS FOR
INTUITIVE UNDERSTANDING

HOW?

CONCENTRATION DATA

kriging

DOSE RESPONSE FUNCTION

Relative Risk (RR) 、Hazard Ratio (HR) from journals in epidemiology, medicine, and public health.

HEALTH IMPACT

Prevalence and mortality data at the township/district level

MONETIZED HEALTH IMPACTS

based on health insurance costs

HOW?

CONCENTRATION DATA

kriging

DOSE RESPONSE FUNCTION

$$\Delta Y = \left(1 - \frac{1}{e^{\beta \cdot \Delta X}} \right) \cdot Y_0 \cdot POP$$

HEALTH IMPACT

Prevalence and mortality data at the township/district level

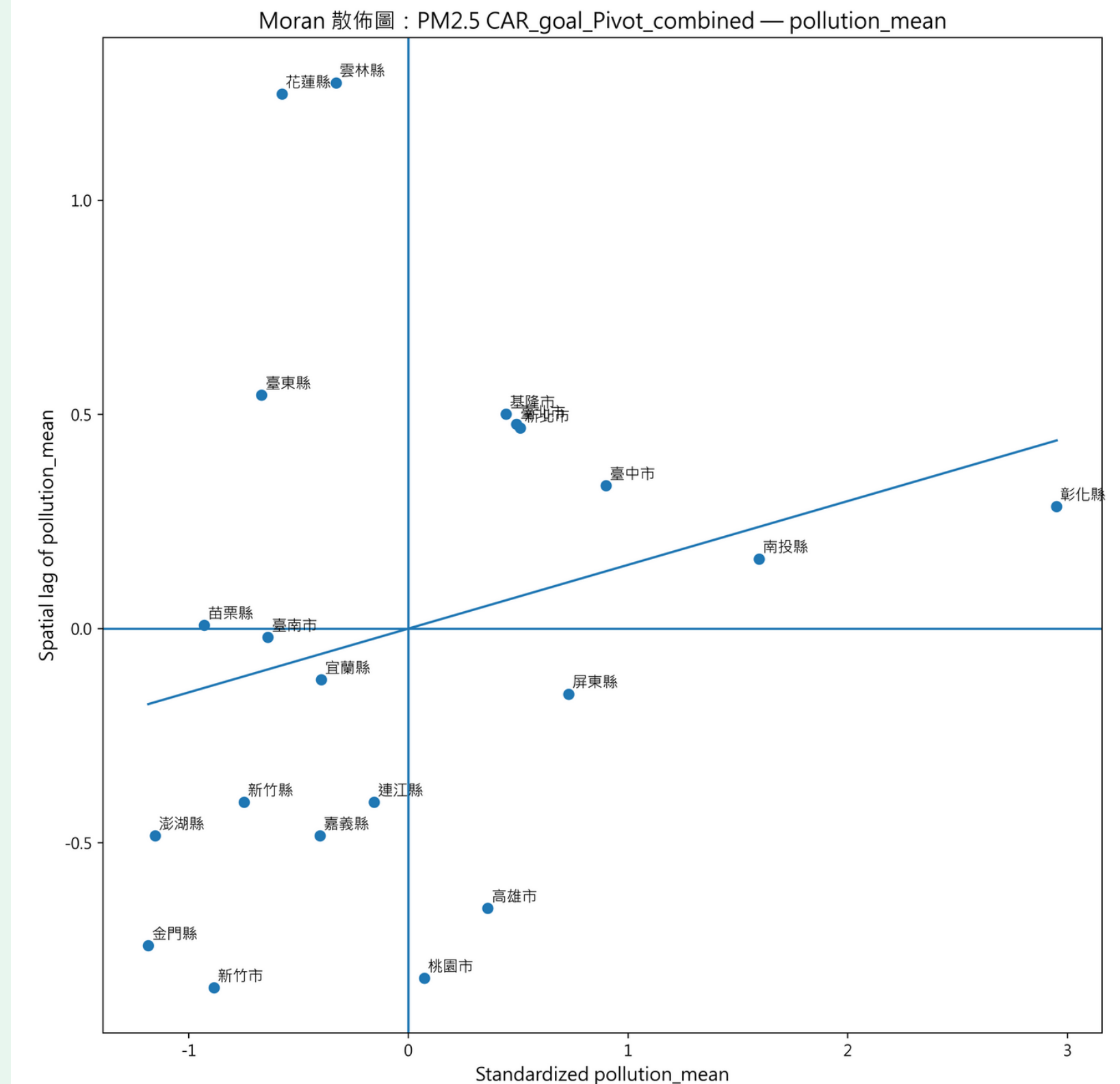
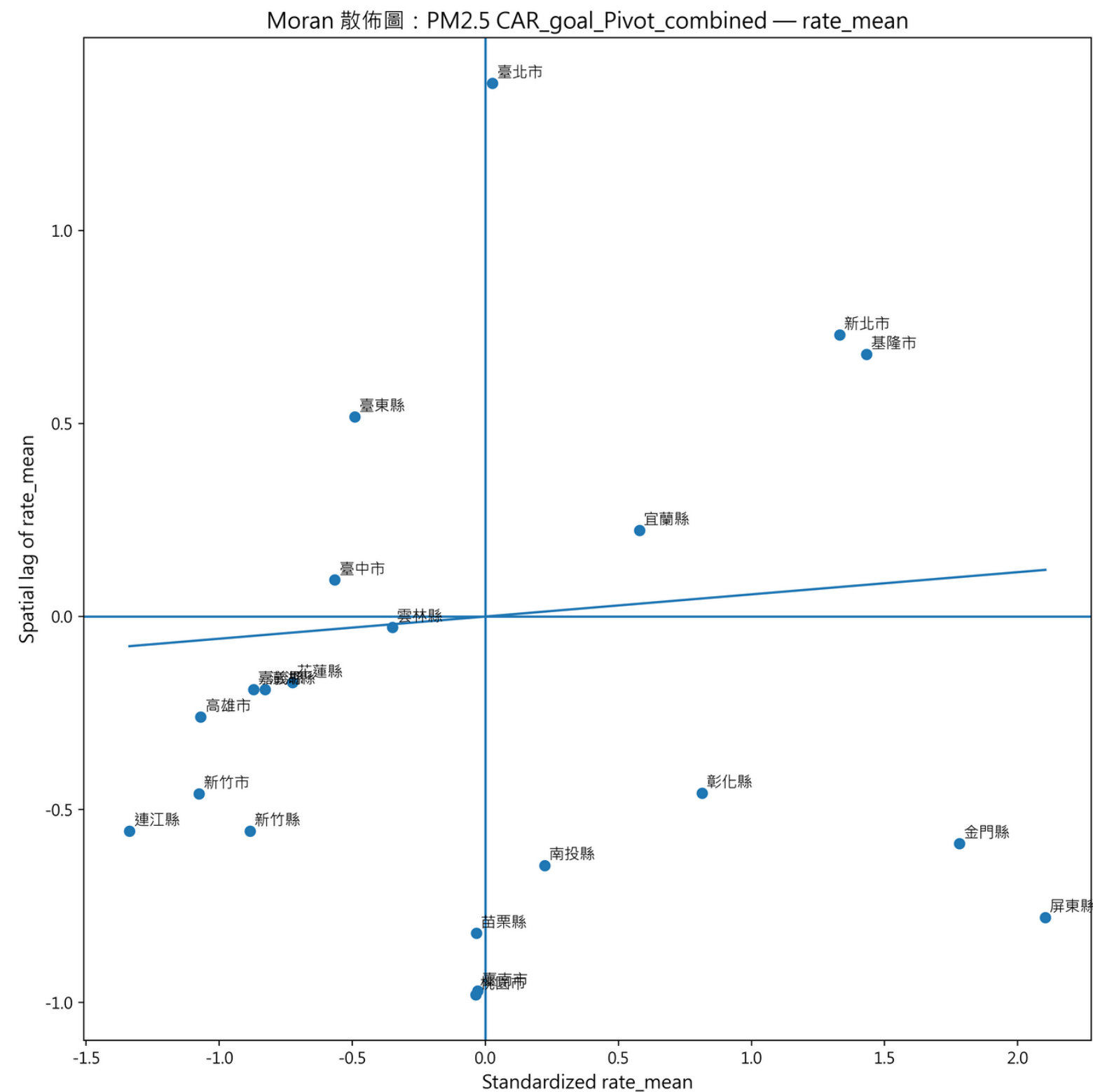
MONETIZED HEALTH IMPACTS

based on health insurance costs

Health Impacts

Cardiovascular
disease

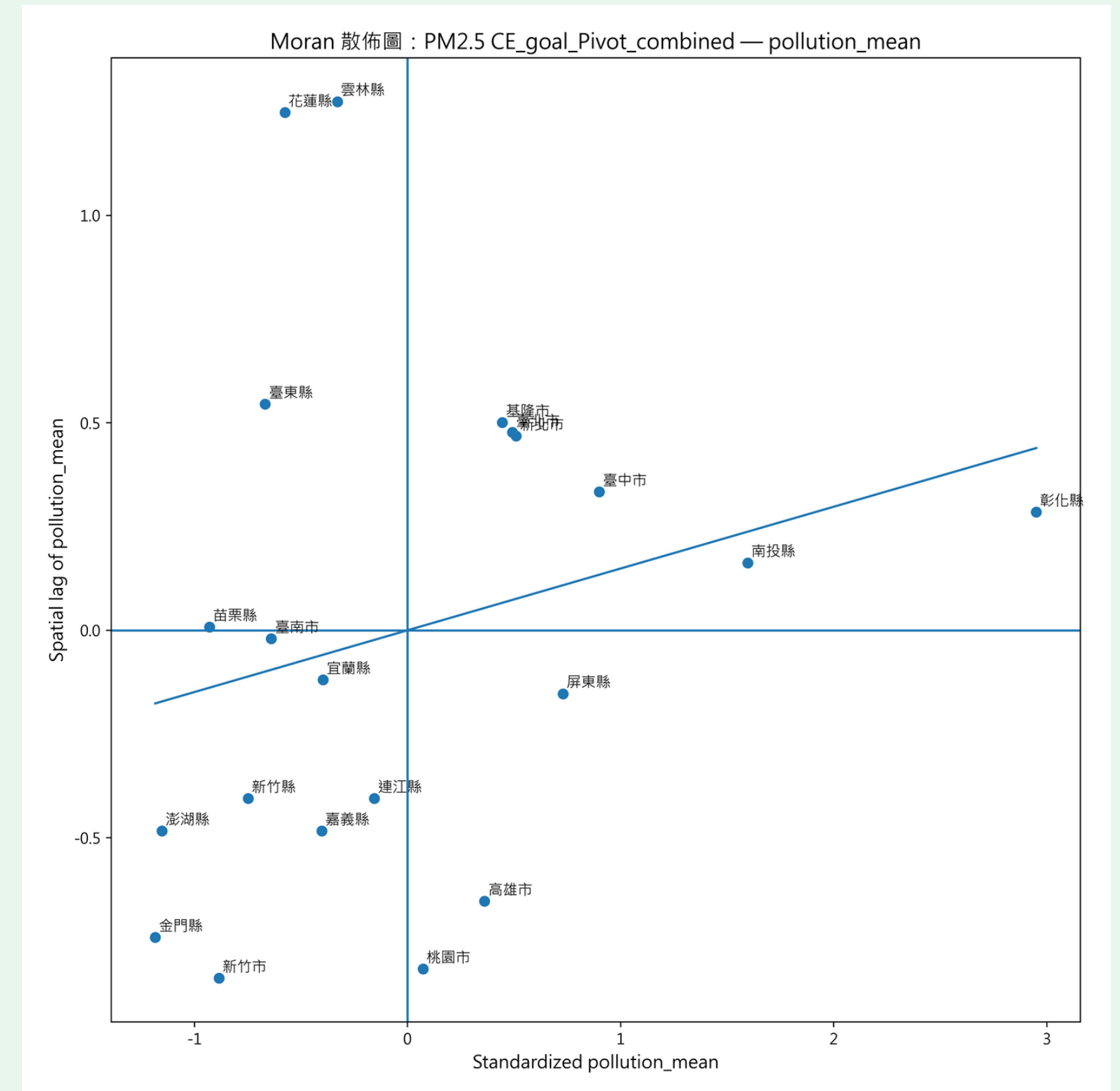
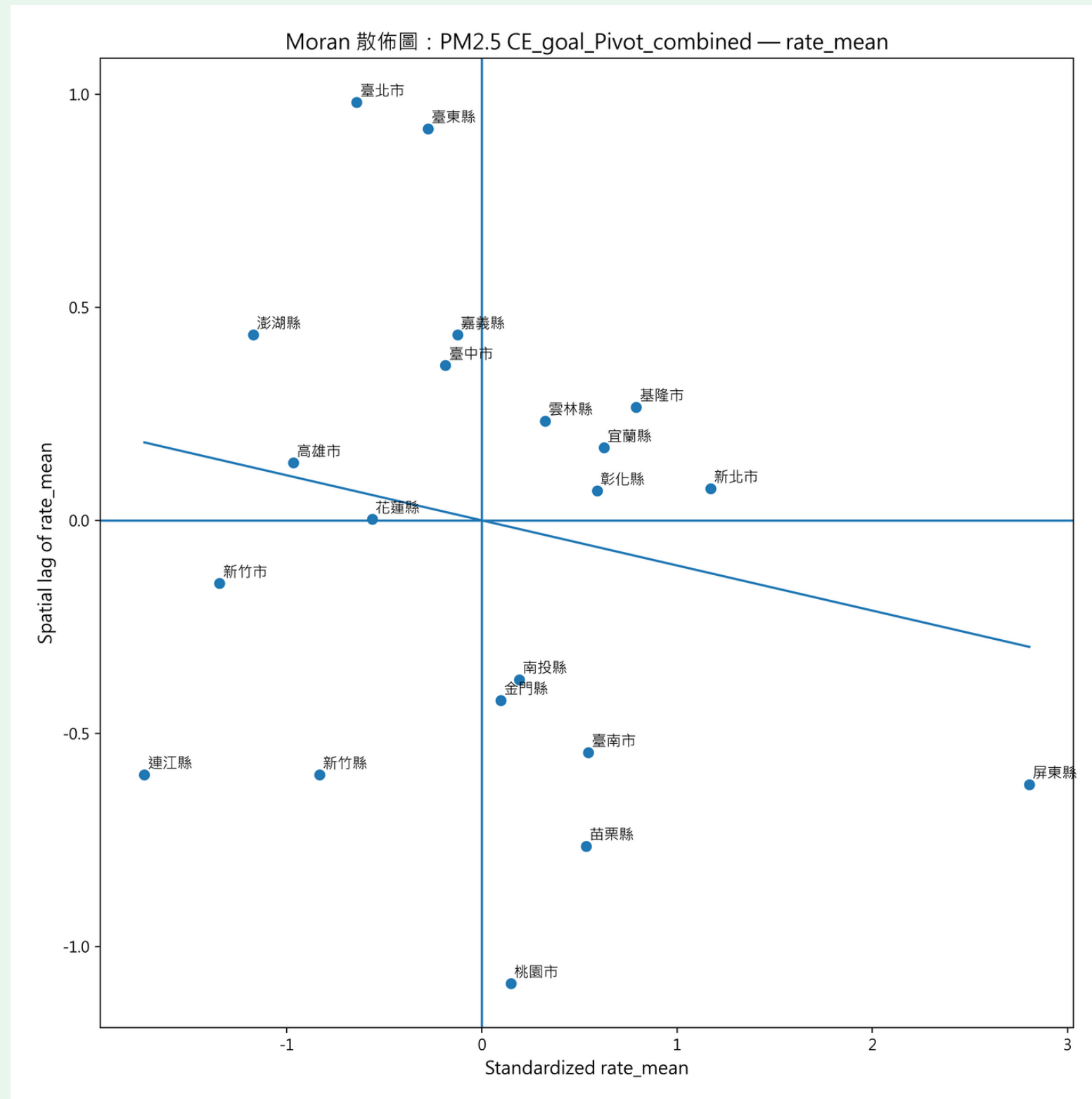
(IF THE 2030 POLICY GOAL CAN BE ACHIEVED)



Health Impacts

Cerebrovascular disease

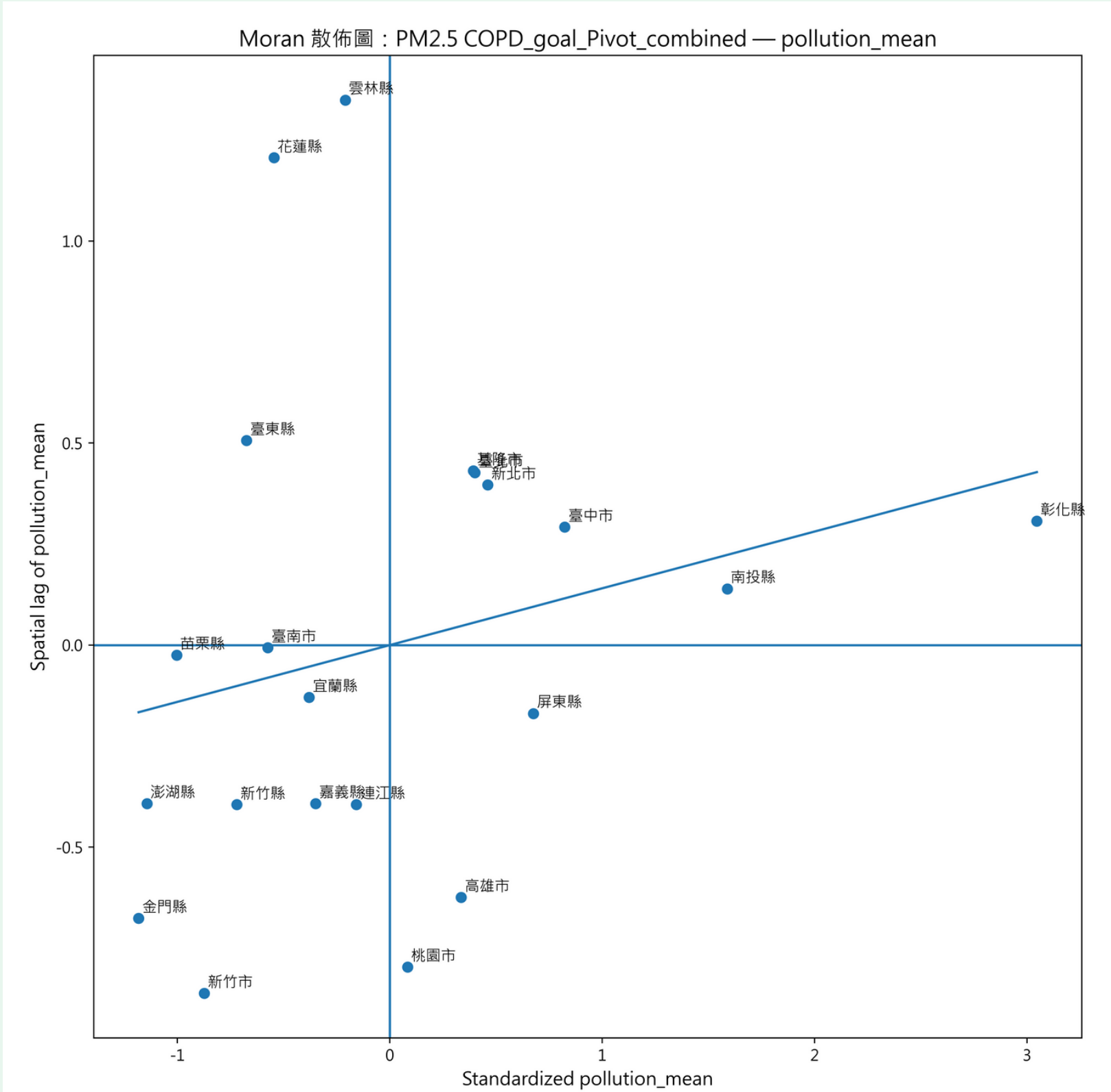
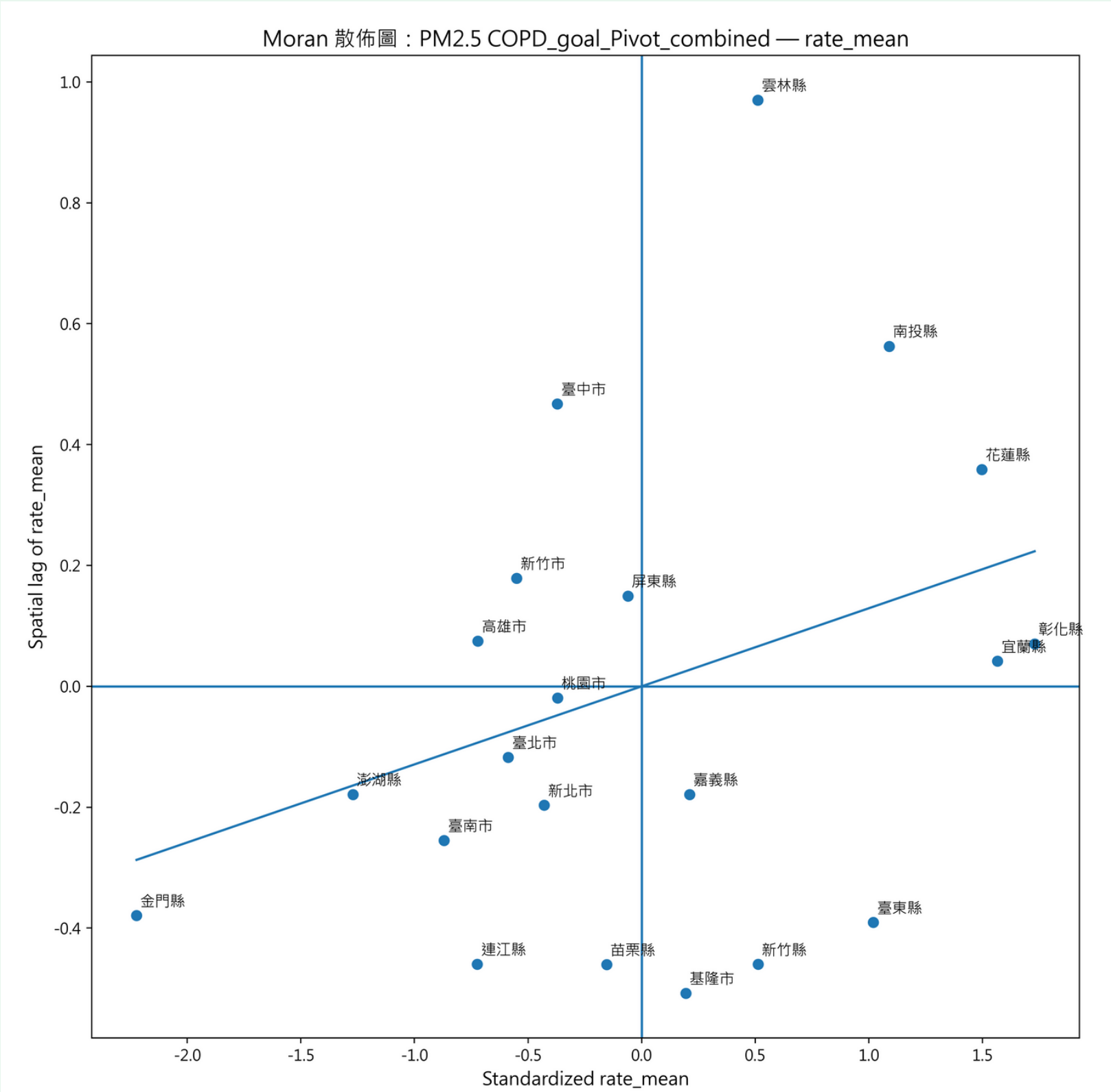
(IF THE 2030 POLICY GOAL CAN BE ACHIEVED)



Health Impacts

(IF THE 2030 POLICY GOAL CAN BE ACHIEVED)

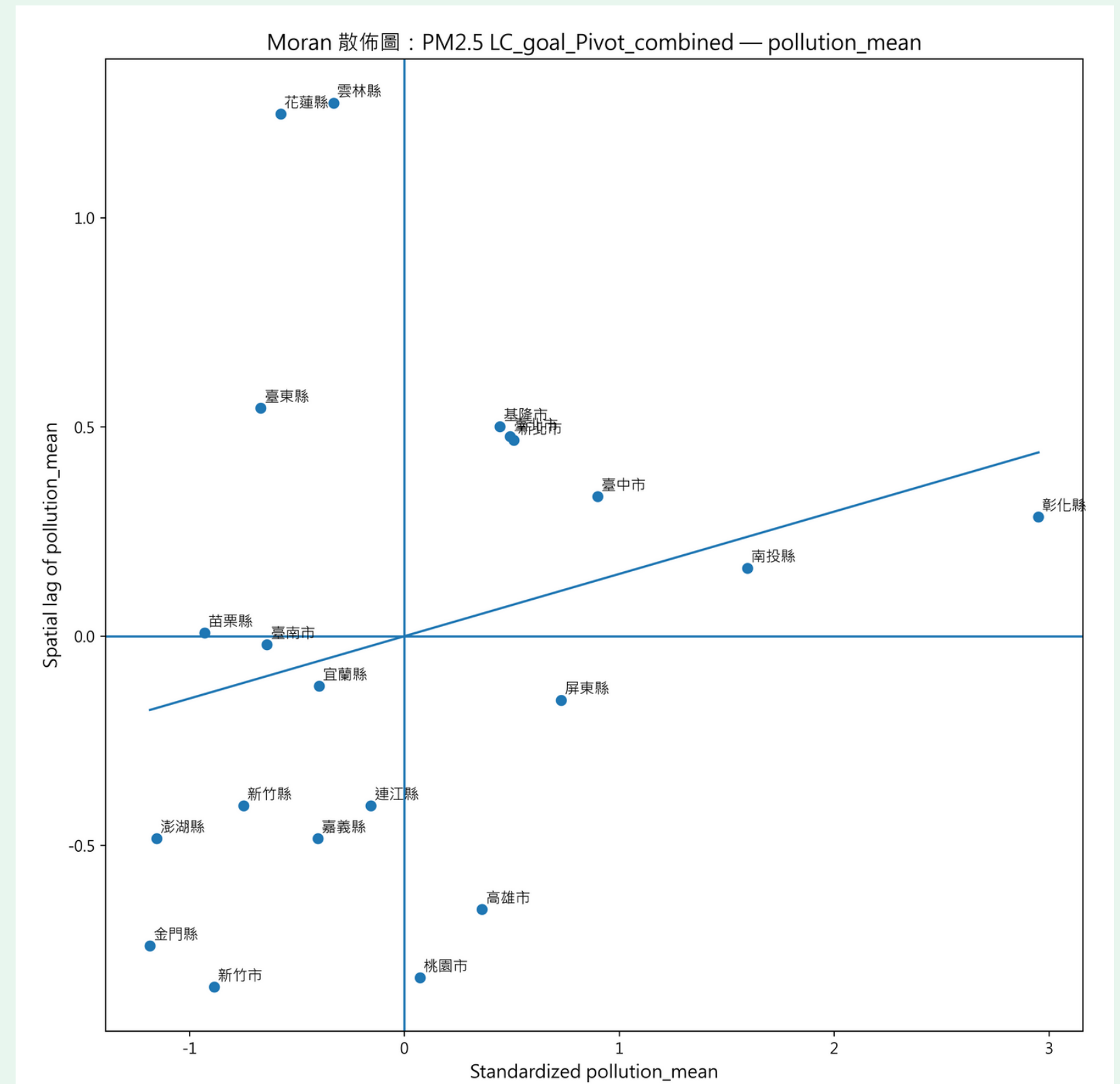
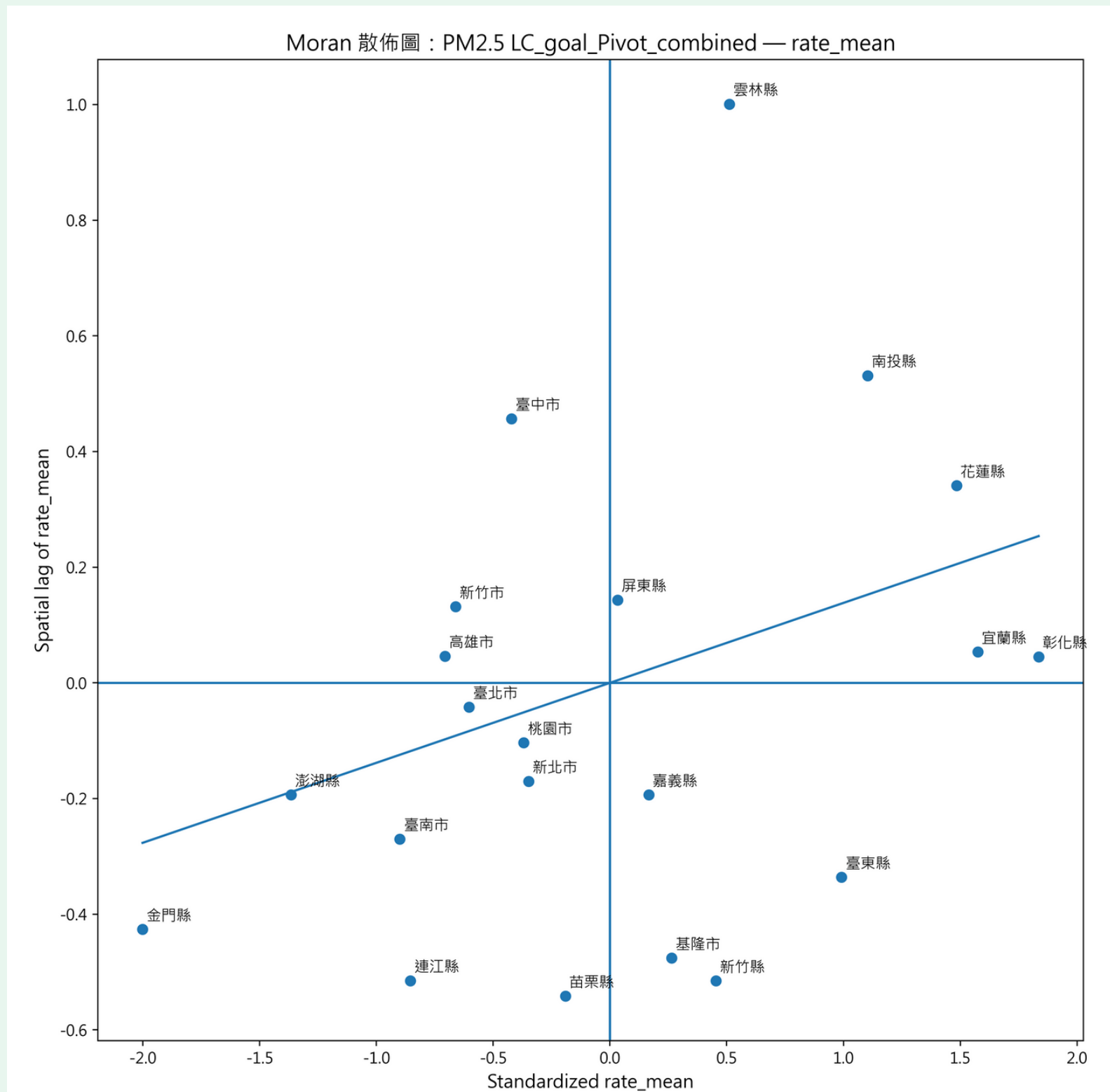
Chronic
Obstructive
Pulmonary
Disease



Health Impacts

Lung Cancer

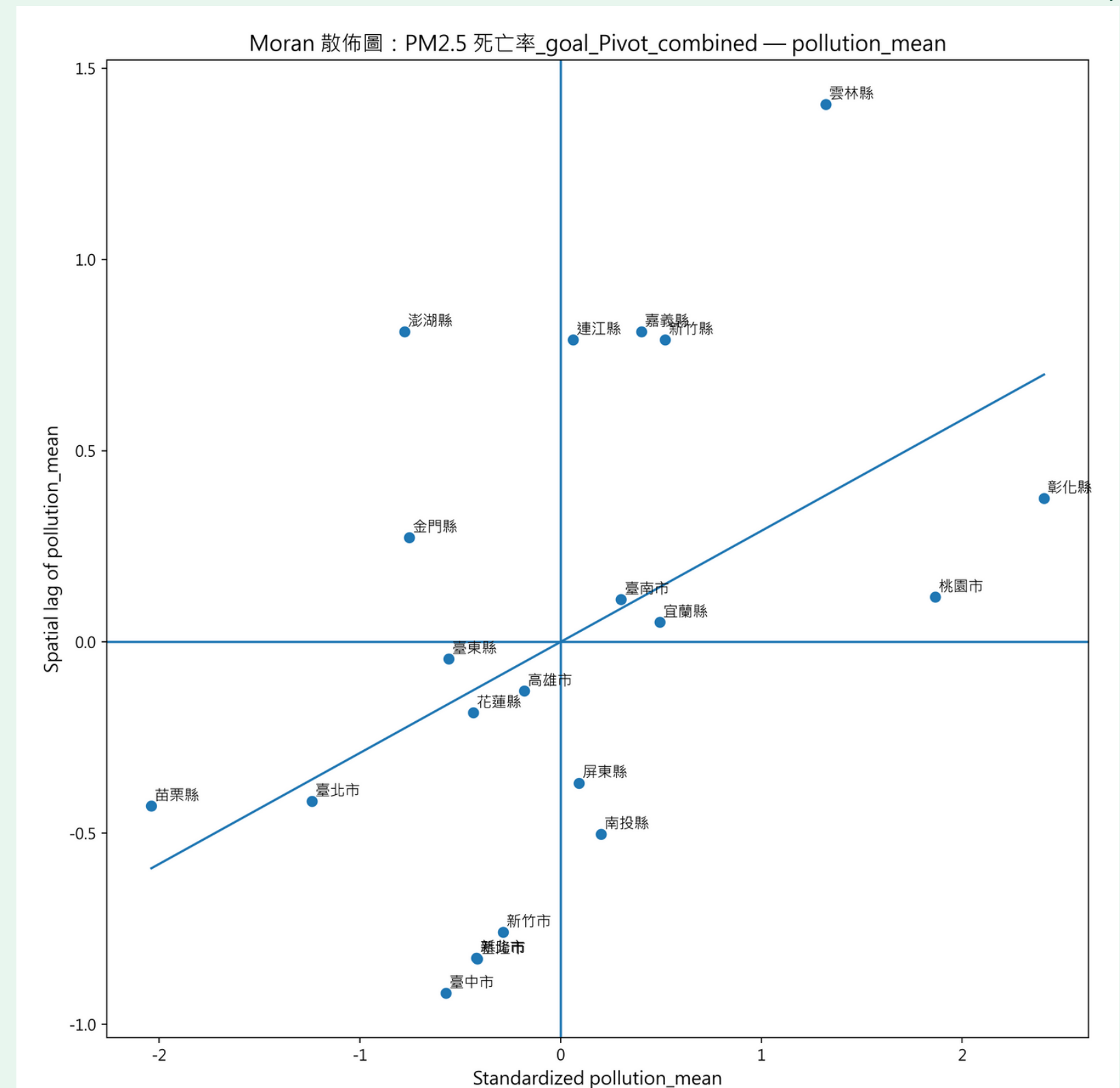
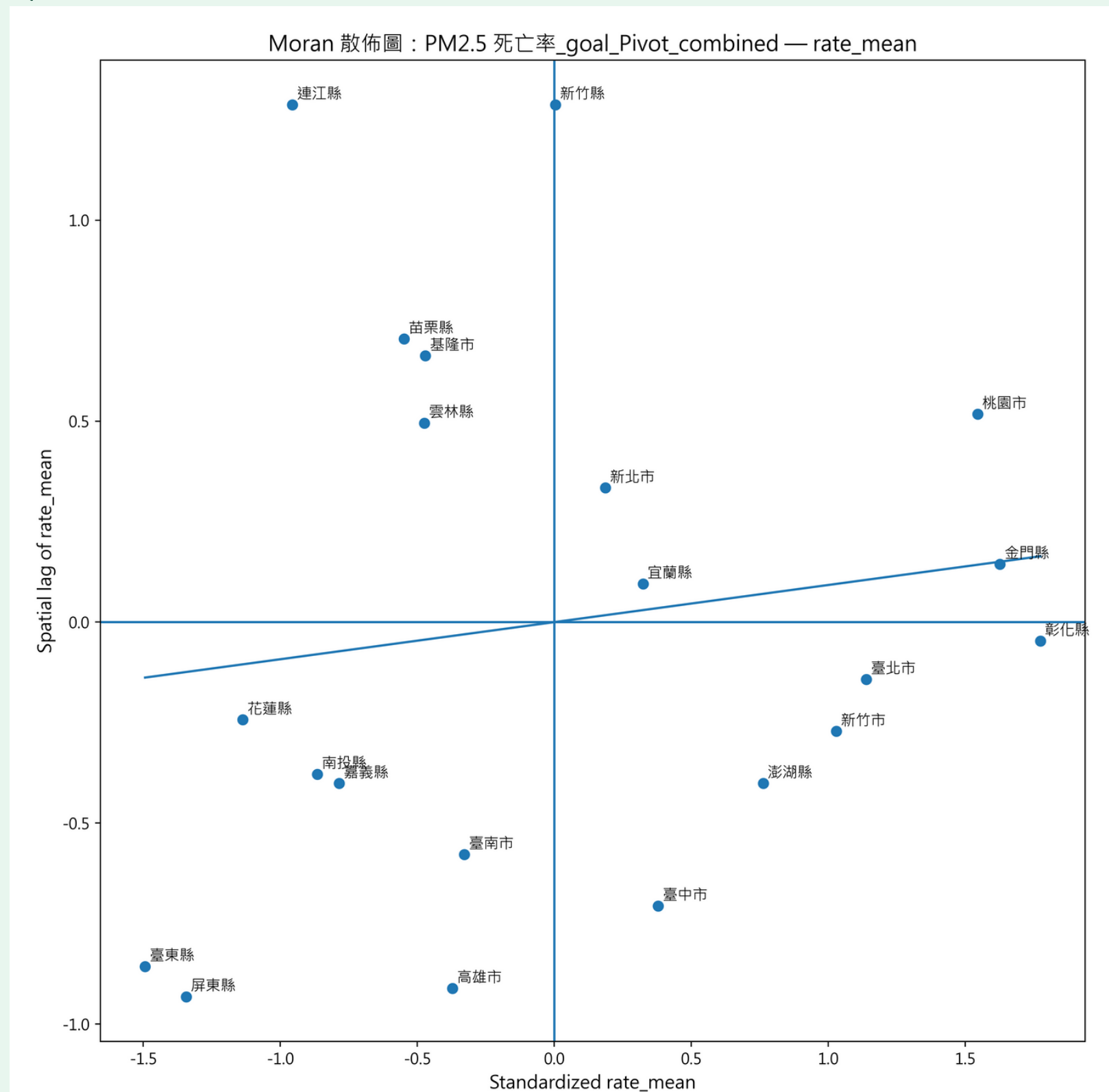
(IF THE 2030 POLICY GOAL CAN BE ACHIEVED)



Health Impacts

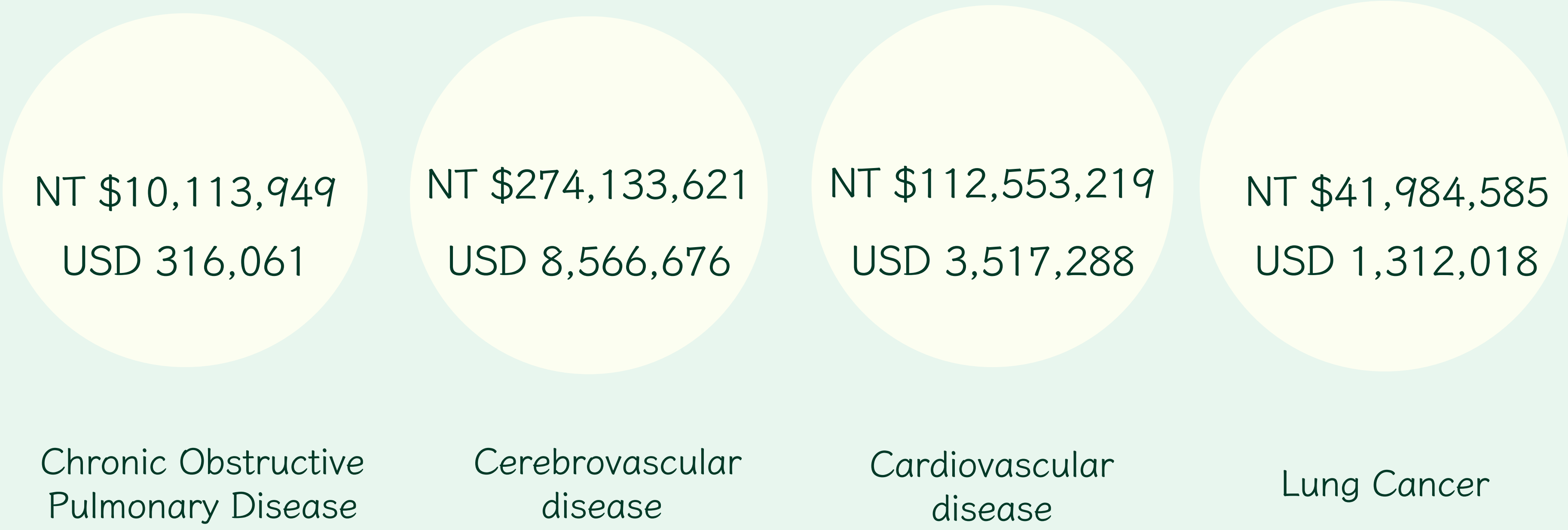
Death

(IF THE 2030 POLICY GOAL CAN BE ACHIEVED)



Reduction of Health Insurance Burden

(IF THE 2020 POLICY GOAL CAN BE ACHIEVED)

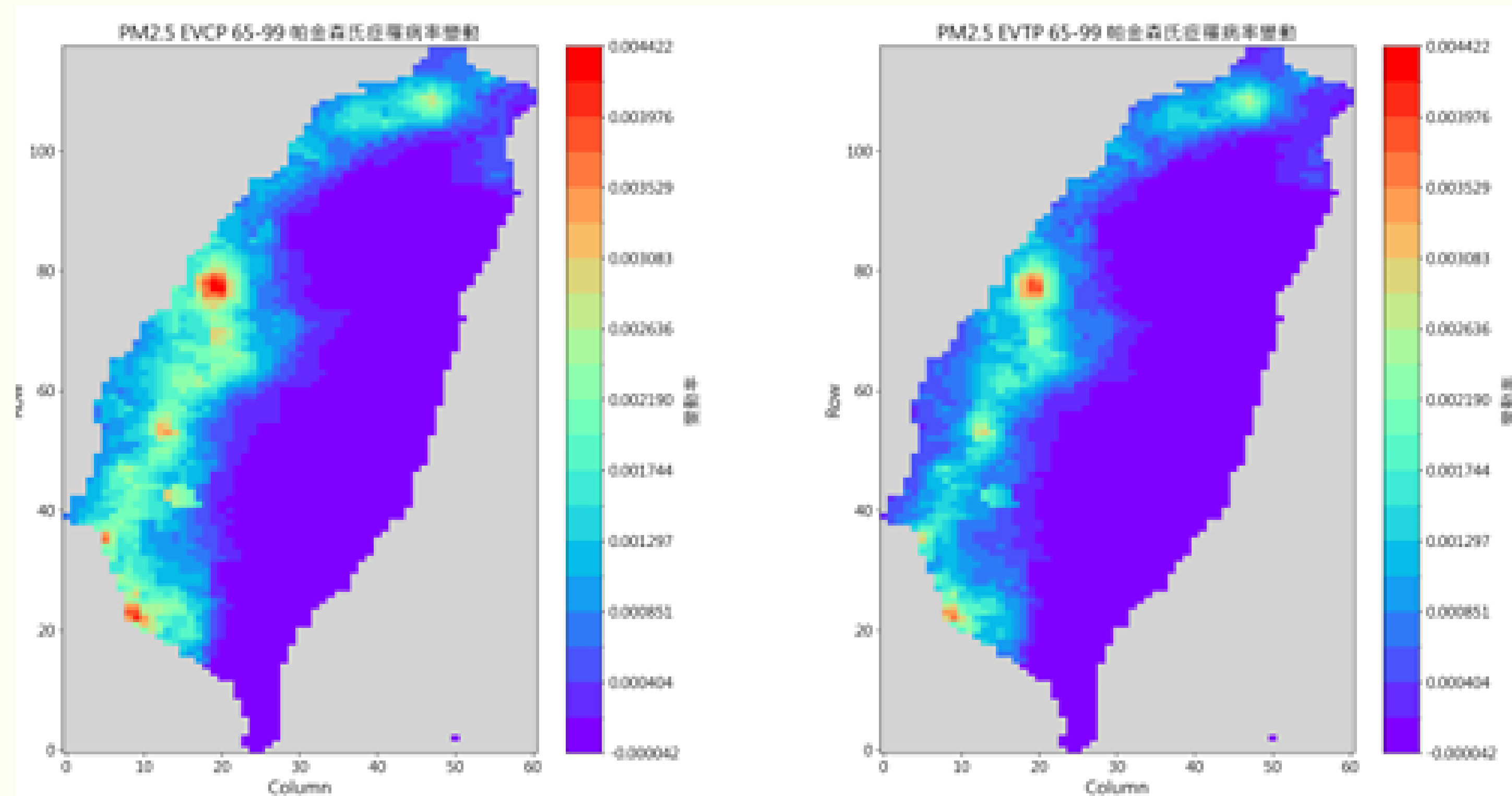


Health Impacts per 100,000 population

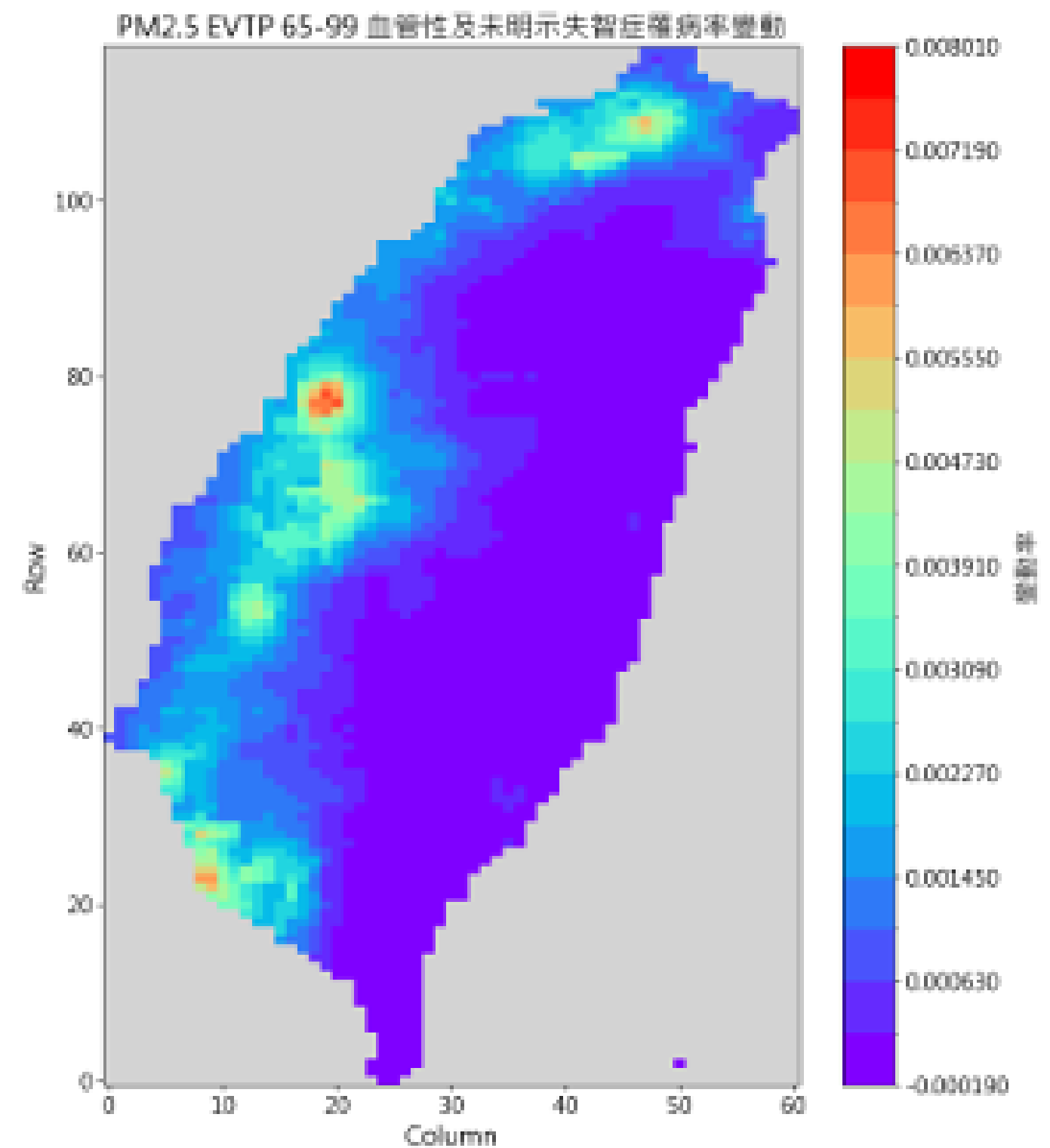
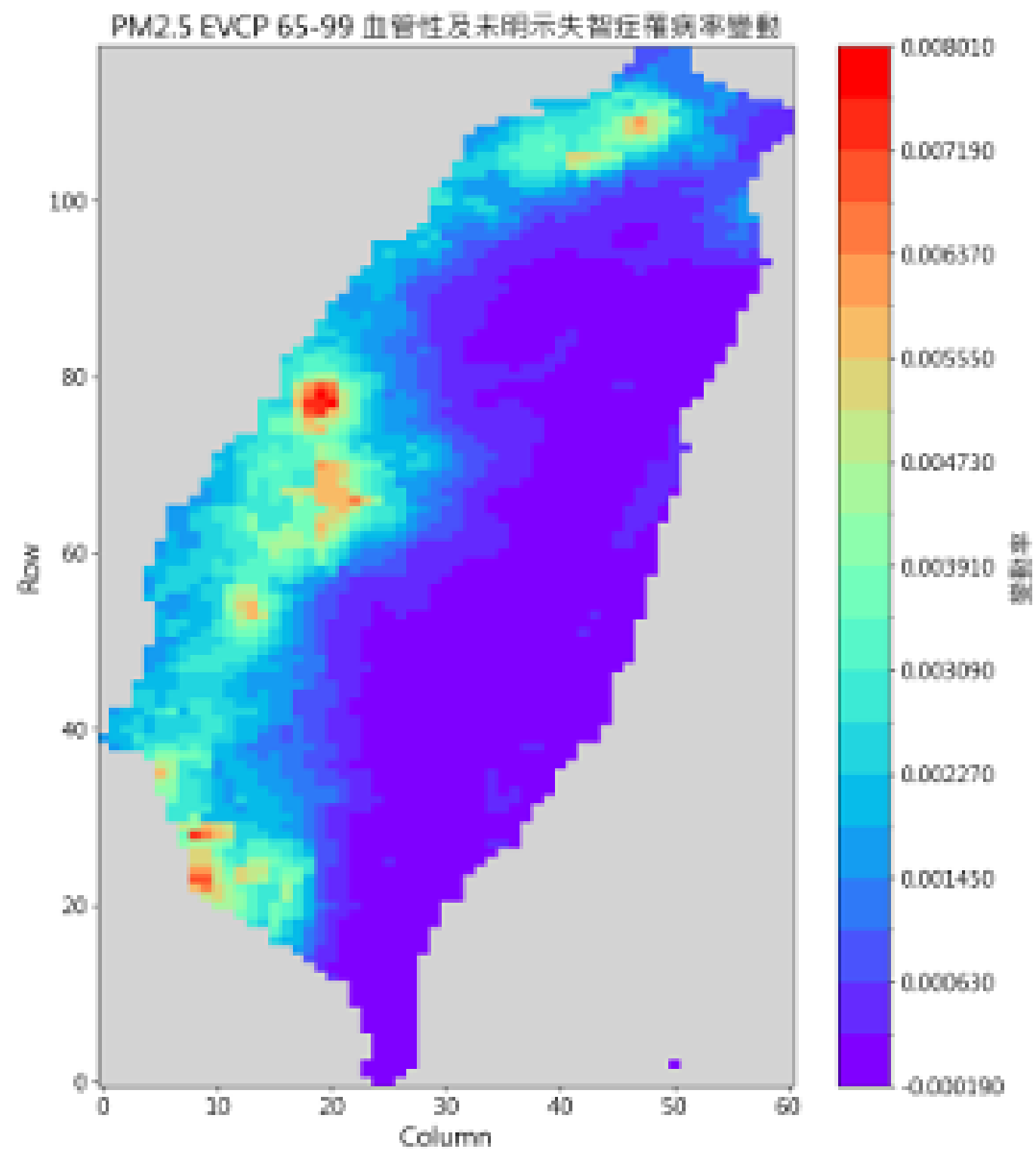
IF THE 2020 POLICY GOAL CAN BE ACHIEVED

	Taipei	New Taipei	Taoyuan	Taichung	Tainan	Kaohsiung
Cerebrovascular disease	2127	2300	2200	2553	259	2312
Chronic Obstructive Pulmonary Disease	211	235	221	222	231	226
Cardiovascular disease	353	330	292	306	320	296
Lung Cancer	503	549	524	542	529	529
Death	25	31	32	32	36	37

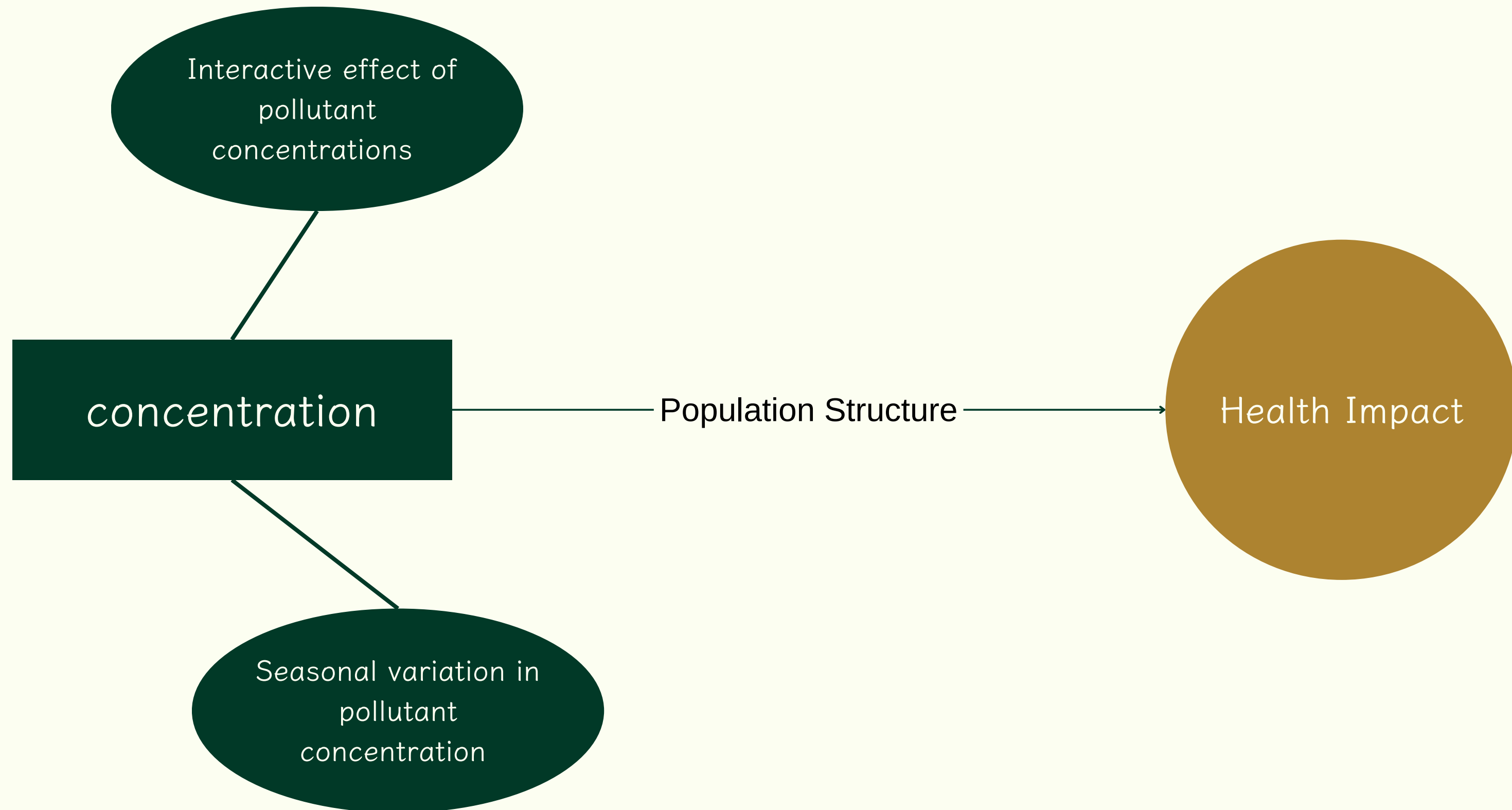
Parkinson's Disease (Special Case)



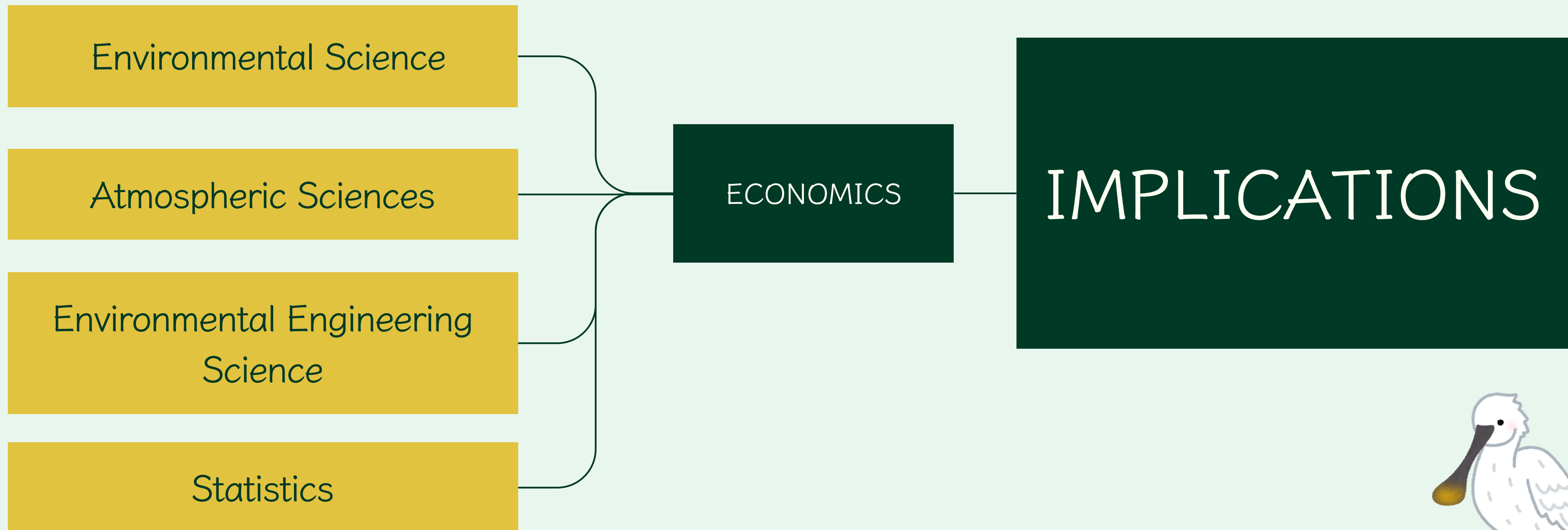
Dementia (Special Case)



What we found?

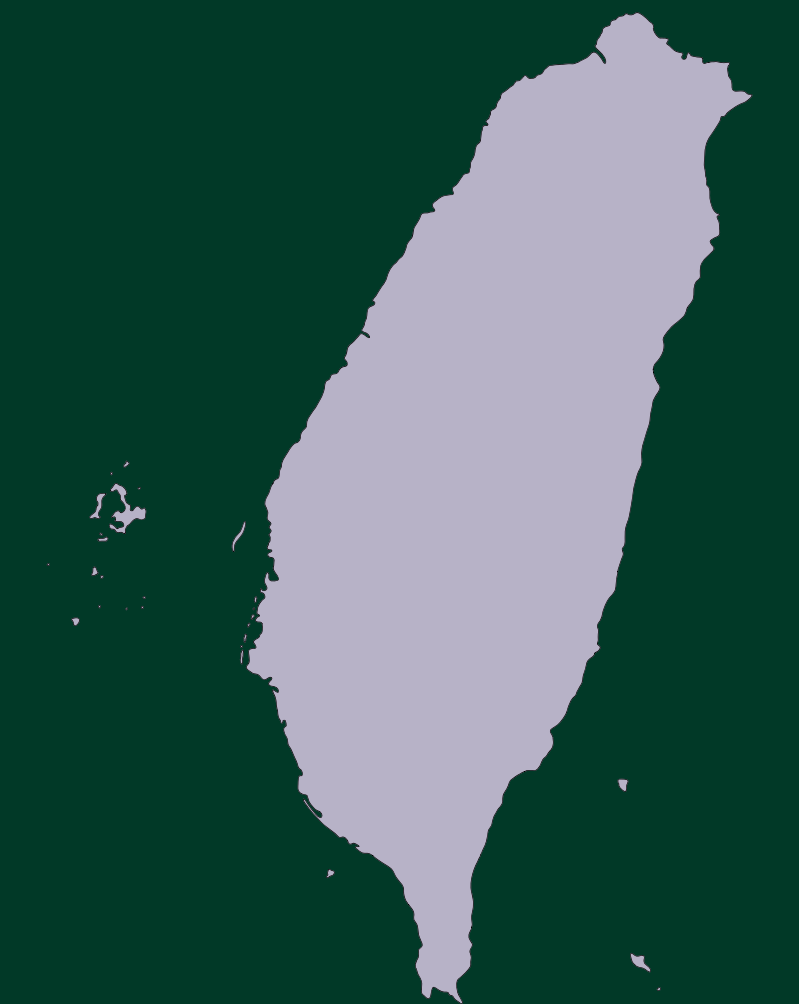


Expert advices



Key Takeaways

A small effect can bring great insights.



Contact Information

