

# No Smoke, No Fire?: Japanese Demand for Tobacco Products and Heat-Not-Burn Devices

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Heat-not-burn devices are electronic devices that heat tobacco. They produce an aerosol that is inhaled. They do not produce smoke.

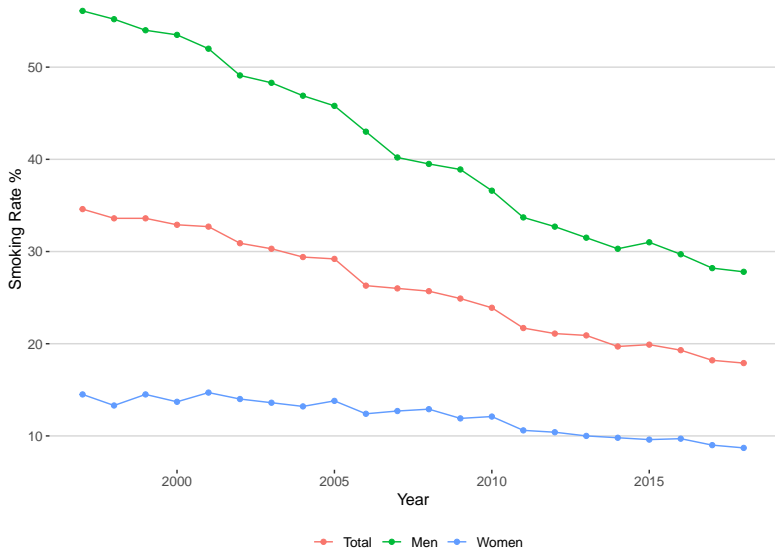
Phillip Morris Products S.A.'s IQOS was authorized as a modified risk tobacco product by FDA in 2020.

The heat-not-burn market is still developing in the U.S. First, and primary market, is Japan. HNB does not compete directly with e-cigarettes in Japan.

Two research goals:

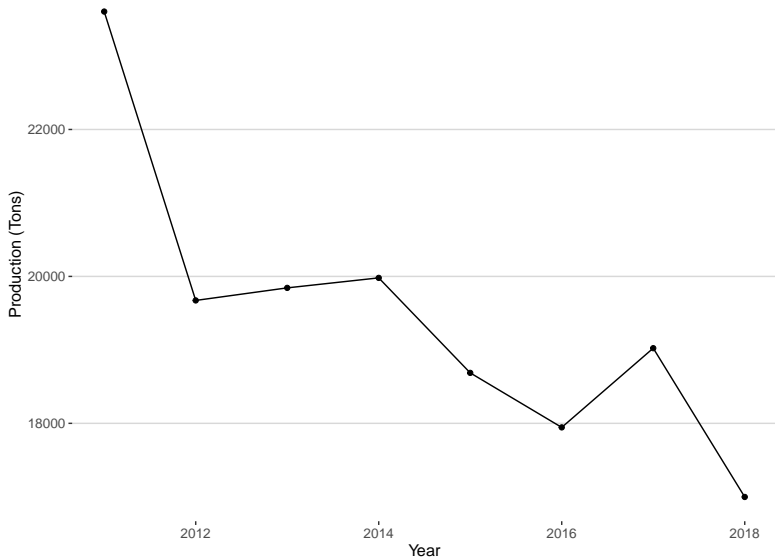
- Estimate elasticity of substitution between conventional cigarettes and HNB
- Estimate the degree of habit formation for HNB

# Smoking Rate



\*Source: JT Smoking Rate Survey

# Tobacco Production



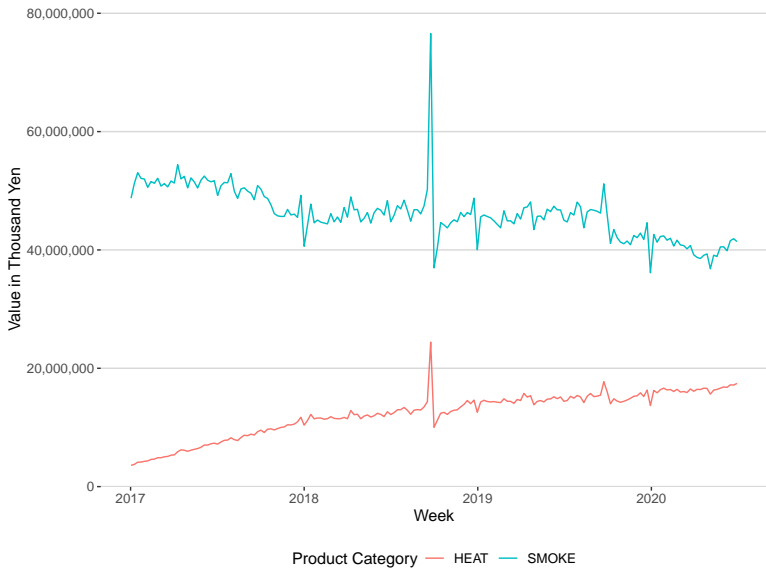
\*Source: MAFF Statistical Yearbook

Rapid introduction of HNB to the Japanese market occurred from 2014-2018

- IQOS introduced in Nagoya in 2014
- Nationwide expansion of IQOS in 2016
- Ploom introduced in 2016
- glo introduced in 2016

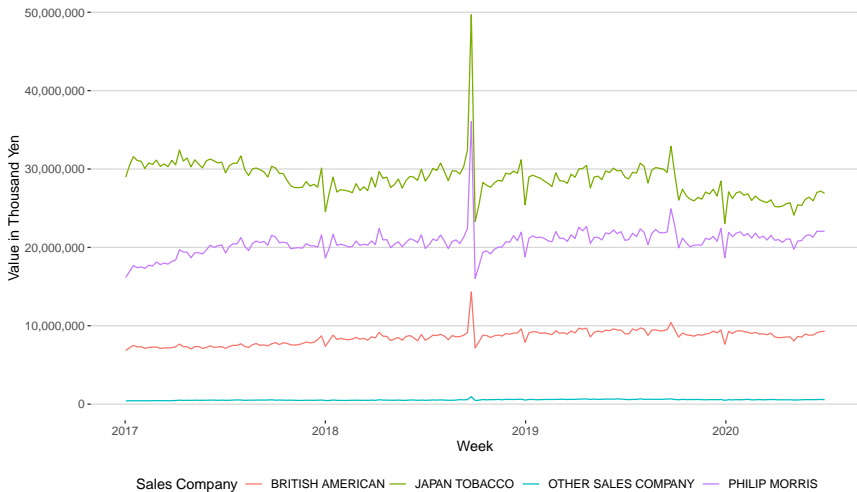


# Market Size



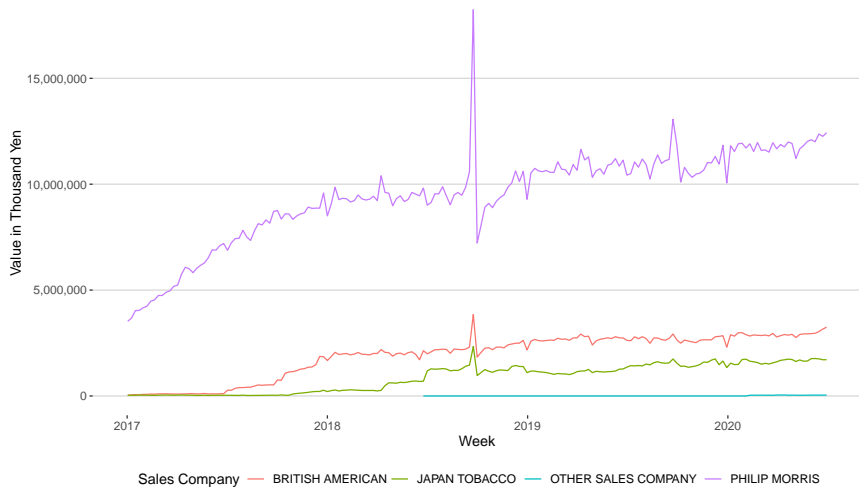
\*Source: Author calculations

# Sales Companies



\*Source: Author calculations

# HNB Segment Only



\*Source: Author calculations



## Scanner Data:

- Weekly data from 1/2/2017 - 6/29/2020
- 12 regions including Hokkaido, Tohoku, Kanto, Keihin, Shinetsu, Hokuriku, Tokai, Kinki, Chugoku, Shikoku, Kyushu, Okinawa
- All major sales channels such as supermarkets, drug stores, convenience stores, etc.

## Demographic Data:

- Per capita income by prefecture from national accounts
- Population by prefecture from Statistics Bureau of Japan

All calculations done at the region level with variables weighted by population in the underlying prefectures.

Create two composite products using quantity and price indices.

This is a two-stage budgeting model assuming weakly separable preferences between tobacco products and all other goods.

- At the first stage, the consumer decides how much of their total budget to allocate to tobacco products
- At the second stage, the consumer decides how much of the budget for tobacco products to allocate to cigarettes or HNB

The second stage demand equations form a dynamic Almost Ideal Demand System.

We find that cigarettes and HNB are **price substitutes**. Both products are habit forming.

Tobacco by weight in:

- Cigarette - 0.7 grams
- Heat stick - 0.25 grams

If we assume that consumers are switching from cigarettes to HNB at one to one, then derived demand for leaf will continue to decline.

Possible bright spot is if HNB requires higher quality tobacco, then demand for U.S. leaf could remain stable.

## COMPANIES

# Philip Morris aims to end its Japan cigarettes sales within 10 years

CEO of Marlboro maker focuses on heat-not-burn products amid stricter rules



## INDOOR SMOKING RULE PROHIBITED EXCEPT FOR DESIGNATED AREAS



### SMOKING ROOM

SMOKING ONLY ROOM  
NO EATING AND DRINKING



### HEATED TOBACCO SMOKING ROOM

SMOKING WITH HEATED TOBACCO ONLY  
EATING AND DRINKING ALLOWED



<https://japantravel.navitime.com/en/area/jp/guide/NTJhowto0128-en/>

In the Japanese market:

- Heat-not-burn continues to gain market share
- Other smokeless products are not culturally accepted or illegal
- Cigarette consumption declining, but not as rapidly

Modeling exercise shows that:

- Elasticity of substitution is relatively high
- Both products are habit forming

We will continue to see expansion of HNB in markets worldwide.