More of the same for Hawaii tourism?

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Constraints inhibiting Hawaii’s largest export—tourism—contribution to economic growth

1. Long-term (since 1980s) political predisposition to restrain tourism capacity growth
2. Longer-term (since mid-20^{th} century) trend decline in real visitor outlay, partly a consequence of composition changes, but also from productivity growth

- **Tourism was dominant engine** of Hawaii economic growth 1950s – 1980s (30 years)
- **Tourism has yet to return to its absolute** economic position of late-1980s (30 years)

Strategic question for next generation is whether Hawaii’s only plausibly material export will return as growth engine, 2020-2050, or simply consume public resources
Hawaii real tourism receipts per visitor declined on trend (to 2017); last quarter century corresponds with tightening lodging inventory.

Real Japan visitor *daily* outlay eroded—after yen rose from 360 ¥/$ (1973) to 120 ¥/$ (1988)—qualitatively similar trend for mainlanders

More visitors, not more dollars: Hawaii tourism performance

Real tourism receipts per Hawaii resident settled since 1989 peak

Real tourism receipts *per Hawaii resident* (logs) peaked in 1989

A mature destination, Hawaii’s tourism now is characterized less by growth of arrivals, more by (unconditional) volatility: a bad “trade”

Visitor arrivals, millions (log scale)

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Rate</th>
<th>Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922-41</td>
<td>4.0%</td>
<td>18.6%</td>
</tr>
<tr>
<td>1946-74</td>
<td>20.0%</td>
<td>11.7%</td>
</tr>
<tr>
<td>1974-90</td>
<td>5.6%</td>
<td>4.4%</td>
</tr>
<tr>
<td>1990-2017*</td>
<td>1.1%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

*Annualized growth rate 1990-2007 before the 2008-09 U.S. recession was +0.6 percent, unconditional interval volatility was 4.4 percent

Sources: As in previous slide; interval unconditional volatility estimates are annualized within-period standard deviations of log changes in underlying arrivals
Diverging monetary policy: Japanese and European monetary policy still behind U.S. monetary policy normalization—they’ll catch up

*Prime Minister Abe re-elected December 16, 2012, initiates "Abenomics," endorsing Quantitative Easing.
†QE widely anticipated in financial markets; announced by ECB President Draghi January 22, 2015.

Source: Federal Reserve Bank of St. Louis; data are monthly averages through early-February 2017 (http://research.stlouisfed.org/fred2/series/EXUSEU and http://research.stlouisfed.org/fred2/series/EXJPUS); exchange rates noted are U.S. market closing prices.
Canadian dollars: price of a barrel of oil IS the value of the Loonie
Australian dollars: price of oil, minerals IS the value of the Aussie

Sources: Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/EXCAUS, https://fred.stlouisfed.org/series/EXUSAL) and https://fred.stlouisfed.org/series/MCOILWTICO; seasonal adjustment by TZE
Japanese daily visitor outlay moves inversely with yen/dollar exchange rate: stronger dollar implies lower expenditure

Foreign visitors’ daily outlays, in home currency terms, are an increasing function of their currency’s value in home currency terms. The U.S. dollar’s appreciation, 2012-2016 because of monetary policy divergence, reduced Japanese tourists’ purchasing power in Hawaii during an interval of growth in tourist volumes.

Sources: Hawaii Tourism Authority, Hawaii DBEDT, Hospitality Advisors LLC, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/AEXJPUS); seasonal adjustment, deflation using Honolulu CPI-U (quarterly interpolation from semiannual data and annual averages, as appropriate) by TZE.
As value of Canadian dollar declined with oil prices, *growth rate* of Canadian visitor daily expenditure slowed (and level stumbled)

Sources: HTA, Hawaii DBEDT, Federal Reserve Bank of St. Louis ([https://fred.stlouisfed.org/series/EXCAUS](https://fred.stlouisfed.org/series/EXCAUS)); seasonal adjustment and regression model of change in natural log of the monthly Hodrick-Prescott filter trend component of daily Canadian visitor outlay on contemporaneous and lagged (12 months) values of the Canadian dollar / U.S. dollar exchange rate by TZE
Until the 1980s, lodging capacity growth was unconstrained; since the 1990s, much of growth is alleged Undocumented Vacation Rentals.

Sources: Hawaii Visitors Bureau, Hawaii DBEDT, Hawaii Tourism Authority (http://www.hawaiitourismauthority.org/research/reports/visitor-plant-inventory/)
Oahu real hotel room rates in 20-teens experienced much sharper (faster) appreciation with higher hotel occupancy than before.

Sources: PKF Hawaii, Hospitality Advisors LLC, Hawaii DBEDT, Bureau of Labor Statistics; seasonal adjustment, room rate deflation using Honolulu CPI-U (quarterly interpolation from semiannual data and annual averages, as appropriate), year-over-year real appreciation rates, and interval regressions calculated by TZE.
In 2010s, Oahu real hotel room rates accelerated at 85% occupancy; in 2000s, incipient acceleration broken by financial crisis, recession.

Frictions in price-setting behavior may explain the early-2000s cycle masking the direct longer-term relationship between real hotel room rates and utilization rates, but the return to 85 percent occupancy during the 2010s on Oahu was associated with a much sharper rise in lodging costs which, in turn, induced a reduction in domestic visitor average lengths of stay.

Sources: Hawaii Tourism Authority, Hawaii DBEDT, Hospitality Advisors LLC, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/AEXJPUS); seasonal adjustment, deflation using Honolulu CPI-U (quarterly interpolation from semiannual data and annual averages, as appropriate) by TZE.
Oahu *domestic* visitor average stay length declined 1 day 2012-2017, other lengths largely unchanged: *somebody* had to give up a day

Average length of stay in days, seasonally-adjusted

Sources: Hawaii Tourism Authority, Hawaii DBEDT; calculated by TZE through mid-2017
Real Hawaii expenditure per visitor (s.a.) down from $2,000 to $1,800 (constant 2017$), recovering through 2012 but slipping thereafter

Sources: Hawaii Tourism Authority, Hawaii DBEDT, Bureau of Labor Statistics; seasonal adjustment, deflation using core U.S. CPI-U by TZ Economics (excludes the impact of more volatile food and energy sources of consumer price inflation) through 2017.
Capacity-constrained Oahu got higher room rates, shorter stays, strong dollar; Neighbor Isles have more rooms, mainland tourists

Sources: monthly data from Hawaii Tourism Authority, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei), Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/CPILFESL); seasonal adjustment and deflation by TZE
Real visitor expenditure, aligned to visitor arrivals in early-20-teens, felt drag of strong dollar, crowding on Oahu as expansion progressed.

**Monthly, billion 2017$, s.a. (log scale)**

**Real tourism receipts**
(Billion 2017$, left scale)

**Total visitor arrivals**
(right scale)

**Sources:** monthly data from Hawaii Tourism Authority, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei), Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/CPILFESL); seasonal adjustment and deflation by TZE.
Musical rooms (on Oahu) + foreign currency depreciation

- At effective full utilization (85 percent), Oahu room rates jumped, mainland visitors reduced stay length by 1 day: more seats, more visitors, but not any more dollars

- Foreign currency depreciation reduced international visitor outlays—they came to Hawaii with ability to pay in their currency, but prices are denominated in ours

- Tourism strategy: “drive visitors to the Neighbor Islands” (fly them)—works fine until they start running out of room, and is that at 85 percent occupancy? 80 percent?

*Wait a few years and find out?*
Pau
Appendix 1: canonical Neoclassical proof of gains from trade—consider first autarkic equilibrium “self-sufficiency” (no trade)

Autarkic, “self-sufficient” relative price of non-tourism is higher

Non-Tourism

Tourism
Open economy trade at world prices enables exporting based on comparative advantage; production shifts towards exportables.

Autarkic, “self-sufficient” relative price of non-tourism is higher.

World relative price of non-tourism is lower.
Consuming more than can be produced domestically in autarky, trading at world prices, unambiguously raises social welfare.

Autarkic, “self-sufficient” relative price of non-tourism is higher

World relative price of non-tourism is lower
Trade enables Potential Pareto Improvement: gains could be redistributed to ensure no one worse off, at least one better off

Non-Tourism

Exports of tourism goods/services

\[(T_1^P - T_1^C) > 0\]

Imports of non-tourism goods/services

\[(N_1^P - N_1^C) < 0\]

Welfare improvement

\[(U_1 - U_0) > 0\]

\[E_0 \rightarrow E_1 : \text{Autarky} \rightarrow \text{Open economy}\]

Autarkic, “self-sufficient” relative price of non-tourism is higher

\[\left(-\frac{p_T}{p_N}\right)_0\]

World relative price of non-tourism is lower

\[\left(-\frac{p_T}{p_N}\right)_1\]

Exports

\[T_0 \text{ to } T_1^C \text{ to } T_1^P\]

Imports

\[N_0 \text{ to } N_1^C \text{ to } N_1^P\]

Tourism
Trade model extension to $n$-space (tourism, non-tourism, environment, culture, etc.) extending proof of optimality if externalities corrected

- Demonstration of unambiguous gains from trade in 2-space requires convexity of production and consumption sets (absence of externalities; all costs explicit): *e.g.* no “missing markets” for natural resource services (watershed, *etc.*), *etc.*

- Laws of diminishing marginal productivity and diminishing marginal utility are *necessary and sufficient* conditions for the proof of general equilibrium, yielding the concave curvature to production possibilities and preference level sets (as shown)

- Social welfare: a competitive equilibrium (CE) is a Pareto Optimum (PO); any PO can be supported by a CE with a suitable lump-sum transfer of the endowment

- In $n$-space (“hyperspace”), convexity is less assured because of external effects—uncompensated, unintended positive or negative side effects: “world prices” are a separating hyperplane and because of nonconvexities (*e.g.* environmental externalities) a CE may *not* be a PO, but any PO still can be supported by a CE with a suitable lump-sum transfer of the endowment (“correcting for the externalities”)
Appendix 2: Long-run Hawaii tourism: visitor arrivals, 1922-2017

Appendix 3: lodging capacity constraints as a housing problem: rising to 3 visitors / unit / day, crowding raises “housing” costs

Hawaii visitors per available lodging unit per day

Sources: Hawaii Visitors Bureau, Hawaii DBEDT, Hawaii Tourism Authority; calculated by TZE as total visitor days divided by contemporaneous visitor plant inventory total, divided by 365.25