Is Holiday Economics Good for the Tourism Sector?
- The Philippine Case

by

Damaris L. Yarcia

For additional information, please contact:

Author's name : Damaris L. Yarcia
Designation : Consultant
Affiliation : Asian Development Bank
Address : 6 ADB Avenue, Mandaluyong City
          1550 Metro Manila, Philippines
Tel. no. : (0632) 632-4444
E-mail : dama_yarcia@yahoo.com
Is Holiday Economics Good For The Tourism Sector?
-The Philippine Case

by:
Damaris L. Yarcia

ABSTRACT
The Arroyo administration has adopted holiday economics as a policy to boost economic growth through higher private consumption, particularly in increased domestic tourism and demand for tourism-related services and goods. The government in 2001-2006 declared additional non-working holidays resulting in long weekends or extended holidays. This paper attempts to examine the claims that holiday economics has a significant impact on employment generation and gross domestic income. Qualitative and empirical analysis is done using ordinary least squares regressions, as well as correcting for long-run relationship among the variables (error correction model) and endogeneity of some variables in the model (two-stage least squares method). Initial findings generally show that extra holidays have a significant impact, but only in some select tourism accounts. Income and travel cost remain the main determinants of tourism activity.

I. Introduction

The Medium Term Philippine Development Plan (MTPDP) 2004-2010 identifies tourism as one of the key employment-generating industries. The National Statistics Office’s Labor Force Survey-based estimates showed that around 5.68 million in April 2003 (18.66%) of total employment is tourism-related, while the National Statistical Coordination Board (NSCB)’s establishment-based estimates put it at around 600 thousand. The tourism sector is targeted to employ 3 million additional workers from 2004-2010. In terms of gross value added, the tourism-related sector contributed Php95.5 billion in the first quarter of 2006, a growth of 5.9 percent from the previous year. This is one-third of the gross domestic production during the period. By components, hotel and restaurants contributed Php4 billion; food and beverage manufacturing-PHP32.4 billion; recreation Php3.1 billion; transportation Php9.5 billion and trade Php46.6 billion. The MTPDP spells out several policies and programs for tourism promotion.

The policy of holiday economics was adopted by the Arroyo administration in the fourth quarter of 2001 by way of long weekends to spur domestic tourism. Holidays falling mid-week are moved to either a Friday or a Monday or if a working day falls between two non-working days, it is declared as a holiday, creating a longer holiday. Moreover, Administrative Order (AO) No. 32 was issued on March 18, 2002 providing for the optional

---

1 Initial drafts were done while the author was a staff at the National Planning and Policy Staff (NEDA) and completed and revised as a graduate research paper under Dr. Ernesto Pernia. This paper benefited from comments made by Mr. Tun Lin. All errors are the author’s own.

2 The difference between the NSO and the NSCB estimates may have arisen due to inability of the LE to capture the informal sector.
adjustment or modification of work hours giving way to a four-day workweek in agencies under the Executive Branch of the government, including government-owned and controlled corporations (GOCCs) and the local government units (LGUs) during the months of April and May 2002. The main objective of the AO was to promote domestic tourism among government personnel. The Department of Tourism believes that this policy will stimulate local tourism activities.

Business groups, however, say that while the policy of extended holiday weekends has been good for tourism, it has been financially ruinous to businesses, stating that declaring new holidays on short notice has either disrupted production and delivery schedules or imposed additional cost in the form of overtime pay. Critics further argue that "holiday economics" may not be applicable to poor, underdeveloped countries like the Philippines where labor’s preference for leisure is most likely outweighed by income constraints.

Presently, there is no known formal study done to estimate the impact of “holiday economics” on tourism, particularly on key variables like employment and production. The closest are (1) the National Statistical Coordination Board’s simulation of the impact of a 10 percent increase in personal consumption expenditure (PCE) for tourism-related expenditure items; (2) the Civil Service Commission assessment of the implementation of the 4-day work-week implemented in government offices in 2002 (AO 32); and (3) Department of Tourism’s analysis on the impact of holiday economics on tourism indicators which are, basically hotel occupancy and domestic travel. In terms of employment, they assume a multiplier effect for every tourist arrival of 1.22. Though these analyses provide valuable insights on the impact of additional holidays on tourism activities, they usually employ descriptive analysis, or use aggregate and select consumption measures and generally do not show the marginal impact of this policy when one controls for other factors affecting tourism.

This paper attempts to fill the gap and provide a statistical analysis of the impact of declaring additional non-working days on tourism-related income accounts, as well as on aggregate employment and aggregate production.

---

3 This issue of unpredictability, however, may now be partly addressed by the passage of RA 9492 in July 2007 which formalizes the policy of declaring holidays falling mid-week or on a Sunday as movable to Monday, thereby creating a longer weekend.
The next section provides a brief review of related literature. This is followed by a discussion on the conceptual framework. The fourth section presents the methodology followed by the results and analysis. The last section offers some conclusions and recommendations.

II. Review Of Related Literature

Tourism, roughly defined, is an industry that revolves around the care and accommodation of temporary visitors traveling outside their usual place of residence to engage in activity not remunerated from within. While tourism is represented in the national accounts, they are not readily visible because tourism is not identified as a separate activity, and the commodities produced and consumed in meeting tourism demand are buried in other elements of the core accounts. However, the National Statistical Coordination Board (NSCB) loosely defines Tourism Satellite Accounts as those in food manufactures, beverage industries, transportation, trade, recreational services and hotels and restaurants.

Modeling demand for Tourism

Tourism demand models are generally based on the concept of consumer choice between two commodities subject to a budget constraint, in this case --- labor and leisure. The consumer trades off paid work against unpaid time and thereby not only incur the direct cost of leisure traveling but also the opportunity costs of paid work. As figure 1 shows, there are two extremes in the consumption bundle, either the consumer engages in all work (0C) or all leisure (0L), or any combination of leisure and labor in between. For example, pt A depicts a greater preference for labor than for leisure, the reverse of which is true for pt. B.

Figure 1.

---

5 There is a current effort to refine definition of tourism-characteristics industry for purposes of monitoring job generation.
Extending this concept of utility maximization subject to a budget constraint and a two-good consumption bundle beyond the choice between labor and leisure, other decisions which have to be made with regard to tourism activities are:

1. Choosing between two destinations (in the case of substitute destinations), such as domestic travel or foreign travel
2. Timing of travel, whether to immediately embark on a holiday or to postpone to a later time

Existing literature on tourism economics\(^6\) stipulates that holiday expenditure is generally a function of income, environment (natural, infrastructure, peace and order or political upheavals) relative prices, exchange rates (for cross-country tourists), information on tourist destinations and transport costs. Furthermore, the behavior of travelers is governed by the following:

1. Consumer decision is usually made in a social context as holidays are usually taken in groups. This underscores the importance of having a common schedule among the group members to engage in holiday breaks.
2. There is a sequential demand for tourism-related goods and services, i.e. transportation, hotel and restaurants, recreational services, food and beverages and souvenir items. Because these goods are complementary goods, each commodity is expected to be sensitive to the prices of other commodities and the decision to engage in holiday travel is made considering all prices simultaneously, particularly in the case of accommodation and transportation.

As mentioned above, the holidays could ensure a common schedule for groups of people to go on holiday trips. It also plays a major role because it addresses circumstances when the worker is forced to select a lesser amount of leisure due to structured hours of work or inability of worker to avail of leave or holiday breaks.\(^7\) Advance declaration of holidays also gives potential travelers to have enough time to plan and save for the trips they are going to take.

\(^6\) See Sinclair (1997) for a review of materials on the development of tourism analysis.
\(^7\) Sinclair (1997)
Measuring the Impact of Tourism: the endogenous variables

Tourism variables usually affect visitor arrival, tourism employment, production and the balance of payments. Final demand as well as input demand for tourism projects is expected to affect aggregate income as more visitors spend more money for recreation. This increased production translates to an increase in employment due to the highly labor intensive tourism sector.

Method of analysis

Micro-level analysis is the most logical procedure, especially since tourism is location specific. However, assessment on the aggregate level could actually reveal a lot on the net effect. This becomes clearer when one recognizes the possibility that income received from tourism by a destination region could be largely off-set by corresponding losses in the origin regions, yielding only modest contributions to net social welfare and efficiency.

One of the most common procedure for regional impact assessment is the input-output analysis. An input-output model (I-O model) is a mathematical model that describes the flows of money between sectors within a region’s economy. Flows are predicted by knowing what each industry must buy from every other industry to produce a dollar’s worth of output. This was used by Arroyo (1979) in measuring the employment impact of tourism in the economy. Another approach is employing a simple formula:

\[
\text{Economic Impact of Tourism} = \text{Number of Tourists} \times \text{Average Spending per Visitor} \times \text{Multiplier}
\]

However, another approach which enable statistical modeling of visitor demand involves the used of time series regression analysis.

Other Variables that affect Tourism

Aside from those mentioned above, according to Arroyo, another major factor in the determination of tourism activities is tourism promotion. Tourism promotions abroad were heightened during the 1970s. In 1973, the Letter of Instructions No. 105 instituted the Balikbayan Program. And in the following year, tax privileges to tourism-related enterprises

---

8 Daniel J. Stynes. [???]
are provided under Presidential Decree 535 covering policies on tax exemptions to policies on air transportation. Arroyo examined the factors affecting the demand for tourism in the Philippines, namely: personal disposable income, paid holidays, urban build-up or tourist facilities, the cost of travel to the Philippines, and awareness and attitudes. Arroyo used foreign currency in peso terms as proxy for travel cost. Arroyo also applied trend analysis in comparing the amount of visitor arrivals before and after the imposition of martial rule in the Philippines, a period which could be characterized by massive tourism campaign. She also emphasized importance of world income using US GNP as proxy. Other variables that affect tourism are tourism promotion budget, availability of tourism facilities, immediate peace and order and long-range stability. In a similar study in Japan, tourism was found to be affected by ease of visa application, SARS and language issues.10

III. Conceptual Framework

The immediate impact of holiday economics is expected to be felt on tourism-related services and goods (TRSG)11. TRSG includes hotels, resorts, restaurants, tour and travel agencies, amusement parks/recreation services.

The conceptual framework below considers all the variables that could affect visitor arrival and spending subject to constraints imposed by data availability. This framework captures demand of foreign, as well as local visitors. Although it is recognized that promotional efforts and other tourism-enhancing investments of the private as well as the government sector influences demand for tourism, these factors (lumped under others) would correspond to the residual in the econometric model due to unavailability of data.

The framework covers both local tourism and visitor arrival, hence, some of the variables include its foreign counterpart, e.g. cost includes not just local price as perceived by domestic travelers but also foreign currency in peso terms as proxy for prices faced by foreign visitors. Movements in the US gross domestic product is used as indicator of world economic outlook. Prices include prices of sub-components of tourism-related activities. Dummy variables pertaining to periods with peace and order problem (e.g. abu sayyaff kidnappings, coup attempt, September 11 terrorism), energy crisis and SARS outbreak were used to test for the impacts of these exogenous shocks on tourism. Unmodeled or residual

11 TRSG is loosely defined as industries which are tourism-characteristic as opposed to those which are tourism-connected. Tourism characteristic industries are those directly attributable to tourism. “Tourism characteristic industries” refer to industries which will cease if tourism stops and will exist if tourism is present.” – NSCB on the July 13 meeting of the Ad Hoc Working Group on the Measurement of Job Creation in the Tourism Industry.
factors include taste, awareness on promotions and other government programs on tourism promotion.

**Figure 1**  
**Model for Tourism Expenditure**  
and its link to GDP and Employment

On the aggregate level, TRSG is expected to affect GDP and employment. The increase in personal consumption translates to increased production of goods and provision of services which will require additional labor. Thus, creation of jobs in tourism and tourism-related sectors can be expected.

Although previous studies emphasize the need to conduct analysis on a spatial context, for purposes of this study, the choice between destinations in the country is not the concern, but rather the net impact on the country’s tourism demand.

**IV. Methodology**

The variables used are quarterly data from 1986 to Q1 2006. The indicator under each category which provides the best fit is used in the analysis. Data on the components of
Gross domestic product in constant terms (1985=100) and prices were sourced from the National Income Accounts (National Statistical Office); holidays from presidential proclamations (office of the President website); minimum wages from various Wage Orders (National Wages and Productivity Council); growth in compensation from the Quarterly Economic Indices (National Statistical Coordination Board), tourist arrival from the Department of Tourism and labor market indicators from various Labor Force Surveys (National Statistical Office).

**Gross Value Added (GVA) in Recreation** refers to recreational and cultural services covering profit-making establishments and own-account workers in the fields of motion picture production and distribution, radio and television broadcasting, theatrical production and entertainment, and other amusement and recreational services, such as the operation of dance halls and studios, race tracks, and circuses. Authors, music composers, and other independent artists are also included.

**Gross Value Added in Hotels and Restaurants** refers to restaurants, cafes and other eating places cover all establishments engaged in selling prepared food and drinks for consumption within its premises. Also included are caterers and independently operated dining car services as well as canteens in plants, offices and clubs for which data can be obtained separately. The provision on a fee basis of lodging, camping space and facilities, whether open to general public or restricted to members of a particular organization like YMCA is included in the hotel services subsector. Lodging facilities operated by clubs, enterprises and government are classified under this sector if such activities can be separated.

**Gross Value Added in Tourism Related Services and Goods** is the sum of GVA in Food and Beverages Manufacture; transportation and storage; Trade; Recreational Services; and, Hotels and Restaurants

**Dummy for peace and order disturbance:**

(1) DABU peace and order dummy with 1 assigned to Q3 and Q4 of 2001 and 2002, the 2 immediate quarters following the May 27, 2001 Burnham abduction and June 7, 2002 rescue attempt where Deborah Yap and Martin Burnham were killed; (2) DUM87S3 refers to 1987 coup attempt;

12 CNN timeline
**Holiday indicators**  
(1) **WKEND** total number of long weekend holidays for the quarter resulting from the increased holiday announcements;

**Dummy for external shocks:** (1) **DUMSEPT11** peace and order dummy with 1 assigned to Q4 2001 and Q1 2002, the 2 immediate quarters following the September 11 bombing; (2) **DUMASIAN** covers the Asian Crisis 1996-1999; (3) **DUMSAP** covers the Structural Adjustment Program of the WB 1981-1985; (4) **DSARS** covers the SARS scare in 2003; or, (4) **DUMCRISIS** all crisis 1985; 1990-1993; 1997-1998

**Cost of TRSG** is represented by the implicit price indexes for hotels and restaurants, recreation, and transportation; for foreign tourists, it is represented by Foreign exchange (Php/foreign currency); particularly Australian dollar (FAUS)

**Income** is reflected in (1) the minimum wage for non-agriculture industries (MINW); (2) the index of compensation for non-agricultural industries (QSE1P); (3) per capita GDP (PCGDP); or, (4) World income or the US gross domestic product

**Gross domestic capital formation** (GDCF) is used as proxy for infrastructure development in the area.

**Visitor arrival** (VISARRIV) refers to the number of foreign travelers visiting the country for a holiday

**The Procedure**

Intermediate impact in tourism-related activities, specifically GVA in recreation, GVA in hotels and restaurants, other tourism-characteristic activities, and non-agriculture employment were estimated with the use of differencing and the Error Correction Model. The single equation models generated by these procedures were then used as inputs to the two-stage least squares procedure to estimate impact on the two final demand variables - gross domestic production and employment.

All the variables are deseasonalized using the census X-11 procedure of Eviews. The “best” lag scheme and order are determined by simply maximizing adjusted $R^2$, maximizing the likelihood ratio or minimizing the Akaike’s information criterion or the Schwartz criterion. To check for autocorrelation or possible collinearity among the
regressors, Breusch-Godfrey serial correlation tests is performed after each estimation and the equation is revised until it passes the no serial correlation condition.

An examination of the variables reveals that with the exception of the dummy variables, an upward trend and a non-constant variance is observed in all of the series. This is indicative of non-stationarity of the series. To address the problem of non-stationarity, 3 methods were explored using the Eviews statistical software. 

If the model is generated by the model:

\[ y_t - y_{t-1} = \beta + e_t \]

where \( e_t \) is a stationary series with mean zero and variance \( s^2 \), trend is eliminated through differencing of the series in levels. This model is also known as the random-walk model. Danao [2002] suggests doing log transformation prior to differencing. This procedure is a simple way for de-trending, however, it has the disadvantage of losing valuable “long-run information” in the data. This drawback is addressed by the next procedure.

An alternative method of estimation using non-stationary series that would preserve its long-run information is cointegration analysis. Cointegrated series refers to groups of variables which drift together, although individually non-stationary in the sense that they tend upwards or downwards over time. This common drifting of variables makes linear relationships between these variables exist over long periods of time, thereby giving insight into equilibrium relationships of economic variables. This model shows a long-run relationship and short-run dynamics.

For example, if the basic regression model is specified as follows

\[ y_t = \beta x_t + u_t \] (equation 1)

where \( y_t \) and \( x_t \) are both integrated of the same order, say I(1), and there is a \( \beta \) such that \( u_t \) is I(0), then \( y_t \) and \( x_t \) are said to be cointegrated and an error correction model (ECM) is of the form

\[ \Delta y_t = a \Delta x_t + \delta (y_{t-1} - \beta x_{t-1}) + \nu_t \] (equation 2)

This is a valid equation, since \( \Delta y_t \), \( \Delta x_t \), \( (y_{t-1} - \beta x_{t-1}) \), \( \nu_t \) are all I(0). It relates the change in \( y \) to the change in \( x \) and the past period’s disequilibrium.

---


14 Quoting from Maddala: “with most economic time series it is always best to work with differenced data rather than data in levels. The consequences of differencing when it is not needed are much less serious than those of failing to difference when it is appropriate (chapter 6)
2-stage least squares

There is also a possibility that some of the explanatory variables are endogeneous and could be correlated with the error term, a violation of the normality assumptions that is required to generate the best linear unbiased estimates of the model’s parameters. The 2-stage least squares procedure is used to deal with this problem of stochastic error term.

V. Results

The tests show that all the dummy variables are integrated of order 0 and that most of the variables are integrated of order 1. Collinearity among the independent variables is not present with common sample correlation coefficient generally less than 0.6. This is verified by the Breusch-Godfrey serial correlation test results.
**Estimation results**

**Equation 1**

Dependent Variable: **Gross value added in Recreation**<sup>a</sup>

(Q1 1986- Q1 2006)

**Procedure: Differencing**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of long weekends</td>
<td>-0.007561</td>
<td>-0.844707</td>
</tr>
<tr>
<td><strong>Non-agri employment</strong></td>
<td>-0.352989</td>
<td><strong>-2.452584</strong></td>
</tr>
<tr>
<td><strong>Price of recreation</strong></td>
<td>-0.741326</td>
<td><strong>-4.843883</strong></td>
</tr>
<tr>
<td><strong>Infrastructure devt (5 qtr lag)</strong></td>
<td>0.128290</td>
<td><em><strong>4.643909</strong></em></td>
</tr>
<tr>
<td><strong>Index of compensation (2 qtr lag)</strong></td>
<td>0.366516</td>
<td><em><strong>3.261175</strong></em></td>
</tr>
<tr>
<td><strong>Dummy 1987 coup d’etat</strong> (4 qtr lag)</td>
<td>-0.078768</td>
<td>-2.700378</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>0.023255</td>
<td><em><strong>4.822763</strong></em></td>
</tr>
</tbody>
</table>

R-squared 0.463025
Adjusted R-squared 0.427227
S.E. of regression 0.029083
Sum squared resid 0.063438
Log likelihood 174.7276
Durbin-Watson stat 2.077450

<sup>a</sup>“except for the dummy variable, all variables are in log difference

“deseasonalization not needed
Equation 2
Dependent Variable: **Gross value added in Recreation**
(Q1 1986- Q4 2005)
Procedure: ECM

<table>
<thead>
<tr>
<th>Exogenous series: DLGDCFSA(-5) DUM87Q3(-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>GVA in Recreation</td>
</tr>
<tr>
<td>Number of long weekends</td>
</tr>
<tr>
<td>Log( Non-agri employment)</td>
</tr>
<tr>
<td>Log(price of recreation)</td>
</tr>
<tr>
<td>Log(index of compensation)</td>
</tr>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>R-squared</td>
</tr>
</tbody>
</table>

In the short run, as estimated in equation 1:

1. Longer weekends do not result to increase in recreational activities. This suggests that activities covered under the National Income Accounts’ recreation sub-sector such as “movies, radio and television broadcasting, theatrical production and entertainment, and other amusement and recreational services, such as the operation of dance halls and studios, race tracks, and circuses...” are generally holiday-inelastic. Notably, enjoyment of these facilities and services do not involve going to other location and therefore may not be dependent on occurrence of long weekends. Holidays may have a bigger impact through other tourism satellite activities such hotels and restaurants, transportation, food and beverage manufacturing. The effect on hotels and restaurants are tested in equations 3 and 4.

2. Consistent with a-priori expectations:
   a. There is labor-leisure trade-off, employment is negatively related to recreation;
b. Price has the biggest pull on recreational demand, while an increase in compensation gives it the biggest boost;

c. People are responsive to the presence of local recreational facilities, as captured by infrastructure development.

d. Economic uncertain or crisis, such as the coup attempt in 1987, dampens recreational activities.

3. Although not shown, attempts are made to include indicators for peace and order and other external and internal shocks, however, these were found insignificant. This insignificance of peace and order problems and SARS scare, etc. may be due to the perception that these problems are temporary and confined to specific areas. Hence, recreational activities confined in ones own community is considered safe and therefore unresponsive to these shocks.

Holidays acquire significance if one looks at the long run impact:

1. If gainfully employed, one has higher demand for recreation in the long-run. The positive relationship of price and recreation further suggests that recreation could be seen as a status symbol. Taken together, this could mean that people engage in recreational activities as a reward for being gainfully employed. That is why the presence of long weekends, when accumulated over long periods, reduce recreation activities, it reduces earnings, and therefore savings for recreational activities.

2. The negative sign of the index of compensation or increase in compensation, significant both in the long run and in the short run, indicates that increasing their income is the priority consideration of the people in the country. Faced with a choice between labor and leisure, the average Filipino would choose labor.

15 “Conspicuous consumption” is used in some literature.
Equation 3
Dependent Variable: **Gross Value Added in Hotels and Restaurants**
(Q1 1986 - Q1 2006)
Procedure: Differencing

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of long weekend</td>
<td>-0.020244</td>
<td>-1.829980</td>
</tr>
<tr>
<td>Per capita GDP (2 qtr lag)</td>
<td>0.729342</td>
<td>93.92992</td>
</tr>
<tr>
<td>Infra devt (5 qtr lag)*transpo cost”</td>
<td>-0.008494</td>
<td>-2.937688</td>
</tr>
<tr>
<td>Dummy external shocks (1 qtr lag)</td>
<td>-0.038344</td>
<td>-4.434100</td>
</tr>
<tr>
<td>Dummy internal shocks (2 qtr lag)</td>
<td>-0.066288</td>
<td>-5.516238</td>
</tr>
<tr>
<td>Price of recreation (1 qtr lag)”</td>
<td>0.463271</td>
<td>12.01925</td>
</tr>
<tr>
<td>(visitor arrival)*(Php-Aus$)”</td>
<td>0.001366</td>
<td>0.546502</td>
</tr>
</tbody>
</table>

R-squared: 0.981728
Adjusted R-squared: 0.980246
S.E. of regression: 0.033290
Sum squared resid: 0.082010
Log likelihood: 164.3284
Durbin-Watson stat: 0.981728

*Except for the dummy, all the variables are in deseasonalized log difference
“deseasonalization not needed

Equation 4
Dependent Variable: **Gross value added in Hotels and Restaurants**
(Q1 1986 - Q1 2006)
Procedure: ECM

Trend assumption: Linear deterministic trend
Right-hand side variables: WKENDSA LPCGDP ISA LPRICERECS LVISARRISA*LFAUS
Exogenous series: LGDCFSA(-3)*LPRICETRANSPOS DUMEXTSHOCKS(-1)
DUMINTSHOCKS(-2)
Lags interval (in first differences): 1 to 1 (based on the VAR Lag Order Selection Criteria)

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
## Vector Error Correction Estimates

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cointegrating equation</th>
<th>Error correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>coefficient</td>
<td>t-stat</td>
</tr>
<tr>
<td>GVA in Hotels and Restaurants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of long weekends</td>
<td>-4.293621</td>
<td>-0.36641</td>
</tr>
<tr>
<td>Log(per capita GDP)</td>
<td>1476.921</td>
<td>3.27976</td>
</tr>
<tr>
<td>Log(price of recreation)</td>
<td>1088.105</td>
<td>11.9009</td>
</tr>
<tr>
<td>(Log(visitor arrival))*(log(Php:Aus$))</td>
<td>38.38027</td>
<td>4.13217</td>
</tr>
<tr>
<td>Constant</td>
<td>-16548.15</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Effect on GVA in Hotels and Restaurants:**

1. Contrary to the claims of the proponents of holiday economics, long weekends reduces demand for hotels and restaurants services, although this relationship is weak (based on the low t-stat and low coefficient). In the demand side, this negative relationship could be explained by the reduced income and consumption, and in the supply side, this could be explained by the possible reduction or stoppage of services in establishments which could not afford paying holiday premium to employees;

2. Income remains the biggest consideration in terms of magnitude of impact.

3. Complementary activities, such as traveling, which is encouraged with the reduction in transportation cost due to improved infrastructure, increases demand for hotels and restaurants.

4. Tourism activities which are associated with hotels and restaurants, entail large costs and involve traveling and are therefore, highly sensitive to external and internal shocks involving peace and order problem, health hazard or economic crisis.

5. The positive relationship between price of recreation and hotels and restaurants could indicate a relatively low cross price elasticity between demand for accommodation and the recreational activities in the locality. This is intuitive, in the sense that, when one has already borne the cost of transportation and lodging, a traveler would be relatively insensitive to higher prices of the recreational activities, facilities and tourism goods that the locality has to offer.
6. The low t-stat for the visitor arrival may indicate that the hotel and restaurant industry is still dependent on local clientele or that foreign visitors evaluate beyond cheap cost, in terms of currency, in deciding to travel to the country.

**Equation 5**

*Dependent Variable: GVA in Tourism Related Services and Good* \( ^{a} \)

*(Q1 1986 - Q1 2006)*

*Procedure: Differencing*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of long weekend</td>
<td>-0.008574</td>
<td>-2.921024</td>
</tr>
<tr>
<td>Per capita GDP</td>
<td>0.480725</td>
<td>6.976183</td>
</tr>
<tr>
<td>PhP:Aus$&quot;</td>
<td>0.067627</td>
<td>3.156247</td>
</tr>
<tr>
<td>(Infra devt (5 qtr lag))*(transpo cost)&quot;</td>
<td>-0.679451</td>
<td>-3.722243</td>
</tr>
<tr>
<td>Infrastructure development (3 qtr lag)</td>
<td>-0.022289</td>
<td>-2.540188</td>
</tr>
<tr>
<td>Dummy for 1991-92 energy crisis(2 qtr lag)</td>
<td>-0.015453</td>
<td>-2.495210</td>
</tr>
<tr>
<td>Dummy 1987 coup d’etat”</td>
<td>-0.024944</td>
<td>-2.876585</td>
</tr>
<tr>
<td>Constant</td>
<td>0.008443</td>
<td>7.639364</td>
</tr>
</tbody>
</table>

R-squared 0.626439  
Adjusted R-squared 0.586819  
S.E. of regression 0.008572  
Sum squared resid 0.004849  
Log likelihood 251.4179  
Durbin-Watson stat 2.321165

\( ^{a} \) Dummy variable is left in original form, all the rest are in log difference

deseasonalization not needed
Equation 6

**Dependent Variable:** \( \log(\text{GVA in Tourism-Related Services and Goods}) \)

**(Q1 1986- Q2 2004)**

**Procedure:** ECM

Trend assumption: Linear deterministic trend

Right hand Side Variables: WKENDSA LPCGDPSA LFAUS GDCFSA(-4)*IMPNDEXTRANSPOS

Exogenous series: DUM87Q3 DUMENERGYCRISIS(-2) GDCFSA(-3)

Lags interval (in first differences): 1 to 6 (based on the VAR Lag Order Selection Criteria)

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

**Vector Error Correction Estimates**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cointegrating equation</th>
<th>Error correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>coefficient</td>
<td>t-stat</td>
</tr>
<tr>
<td>Log(GVA in TRSG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of long weekends</td>
<td>-0.046987</td>
<td>-6.89353</td>
</tr>
<tr>
<td>Log(per capita GDP)</td>
<td>0.417538</td>
<td>2.26268</td>
</tr>
<tr>
<td>Log(PhP:Aus $)*</td>
<td>0.251315</td>
<td>4.39323</td>
</tr>
<tr>
<td>Infra devt (5 qtr lag)*transpo cost(1 qtr lag)</td>
<td>1.87E-08</td>
<td>8.47925</td>
</tr>
<tr>
<td>Constant</td>
<td>6.854474</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.458962</td>
<td></td>
</tr>
</tbody>
</table>

*Except for the exchange rate and transportation cost, all are deseasonalized

On the aggregate:

1. On the aggregate, tourism satellite activities show significant sensitivity to holidays, this time capturing the effect of other tourism account. However, contrary to general expectation, an increase in the number of long weekends, reduces tourism-related goods and services. This perverse result show how the demand induced by the policy may have been exceeded by the fall in demand due to reduction in disposable income, especially of the no-work no-pay workers. This is not unlikely considering
that contractual, per-piece and per-hour work arrangement is predominant in the country.16

2. Income is still a major factor explaining tourism activities, but the reduction in transportation cost replaces compensation as the biggest inducement to engage in tourism

3. Peso devaluation increases TRSG, on the supply side, presumably because production for exports are encouraged, and on the demand side, because foreign tourists are partly encouraged to come

4. The coefficient of the infrastructure development in 5 is quite perverse and may suggest that 3 quarters is still a short run period of time that is why trade-off is still felt between consumption and capital investment. An addition of 2 quarters resolves this trade-off and the capital investment leads to reduction in transportation cost and an increase in demand for tourism.

5. Political instability and power crisis which are national in scope are both detrimental to production, and significantly reduces tourism activities.

**Equation 7**

Dependent Variable: **Non-agricultural employment (supply equation)**

(Q1 1986 - Q1 2006)

Procedure: Differencing

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of long weekend</td>
<td>-0.010930</td>
<td>-1.719205</td>
</tr>
<tr>
<td>Dummy 1987 coup d'état (-1)**</td>
<td>0.038655</td>
<td>1.652889</td>
</tr>
<tr>
<td><strong>Value added in non-agri sectors</strong></td>
<td>0.346186</td>
<td>2.212875</td>
</tr>
<tr>
<td><strong>Non-agri minimum wage</strong></td>
<td>0.125898</td>
<td>2.695122</td>
</tr>
<tr>
<td><strong>Labor force</strong></td>
<td><strong>2.61E-05</strong></td>
<td><strong>5.238303</strong></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.000551</td>
<td>-0.167055</td>
</tr>
</tbody>
</table>

R-squared: 0.327952
Adjusted R-squared: 0.283149
S.E. of regression: 0.019761
Sum squared resid: 0.029287
Log likelihood: 206.0308
Durbin-Watson stat: 2.329788

16 The NWPC puts minimum wage workers at 3.1 million; based on a survey by Bureau of labor and Employment Statistics' there are 1.2 million time-rated workers and 651 thousand non-regular workers
Except for the dummy, all the variables are in deseasonalized log difference.

Equation 8
Dependent Variable: Log(Non-agricultural Employment)
(Q1 1986- Q4 2005)
Procedure: ECM

Sample (adjusted): 1986Q1 2006Q1
Trend assumption: Linear deterministic trend
Right hand side variables: WKENDSA LVISSA LMINWSA LLFSA
Exogenous series: DUM87Q3(-1)
Lags interval (in first differences): 1 to 1 (based on the VAR Lag Order Selection Criteria)

Trace test indicates no cointegration at the 0.05 level
Max-eigenvalue test indicates no cointegration at the 0.05 level

As indicated in the Trace test and Max-eigenvalue test, the same set of variables showed no cointegration or no long-run relationship.

Re-specification to include the increase in market wages, as opposed to just minimum wages, and other dummy variables for exogenous shocks, capital formation and foreign exchange as an indicator of export competitiveness, yielded at least one cointegrating equation based on the Johansen cointegration test. Using the Vector Error Correction procedure yielded the following long-run equilibrium equation and short-run dynamics:

Sample (adjusted): 1986Q1 2005Q4
Trend assumption: Linear deterministic trend
Right hand side variables: LWKENDSA LVISSA LMINWSA LLFSA LVARSA
Exogenous series: DUMSAP(-4) DUM87Q3(-2) LGDCFSA DLFUS
Lags interval (in first differences): 1 to 1 (based on the VAR Lag Order Selection Criteria)

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
Vector Error Correction Estimates

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cointegrating equation</th>
<th>Error correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>coefficient</td>
<td>t-stat</td>
</tr>
<tr>
<td>Log(non-agriculture employment)</td>
<td>-0.2839</td>
<td>-3.4891</td>
</tr>
<tr>
<td>Log(number of long weekends)</td>
<td>0.0221</td>
<td>2.5147</td>
</tr>
<tr>
<td>Log(GVA in non-agriculture sector)</td>
<td>0.7505</td>
<td>8.9461</td>
</tr>
<tr>
<td>Log(minimum wage)</td>
<td>-0.0705</td>
<td>-2.0098</td>
</tr>
<tr>
<td>Log(labor force)</td>
<td>1.2773</td>
<td>8.4921</td>
</tr>
<tr>
<td>Log(GVA in agriculture sector)</td>
<td>-0.7745</td>
<td>-7.2890</td>
</tr>
<tr>
<td>Constant</td>
<td>-10.7858</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.360402</td>
<td></td>
</tr>
</tbody>
</table>

Noticeably, equation 7 and equation 8 seem to contradict each other. This could be due to the fact that changes made on equation 8 affected the nature of the equation. Basing on the sign of minimum wages, equation 7 appears to be a supply equation, while equation 8 became a demand equation. They could therefore be seen as mirror response:

1. Long weekends reduce (increase) the supply of (demand for) workers. Long weekends bring down employment as firms such as factories and assembly lines resort to work stoppage instead of paying overtime premium to workers. Hence, no-work, no-pay workers are penalized by this policy. This is particularly significant when one considers the bulk of workers on a *per piece, per hour* payment scheme.

2. Crisis periods induce more workers to participate in the labor market to augment a possibly dwindling or highly insecure source of income. Equation 8 shows that labor demand could also be supply-driven

3. Increase in the production in non-agricultural sector increases *both* the supply and the demand for non-agricultural workers

4. An increase in minimum wage increases (decreases) supply (demand) of labor.

5. An increase in the working age population willing and available to work, increases *both* supply and demand for labor.

To be consistent to the previous regressions, the models for TRSG and non-agriculture employment are used as instrument variables in the 2-stage least squares estimation
conducted to test for the overall impact on Gross Domestic Production and Total Employment.

Equation 9
Dependent Variable: $\log(\text{Gross Domestic Production})^a$
(Q1 1986- Q4 2003)
Procedure: Two-Stage Least Squares

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\log(\text{GVA in tourism-related services and goods})$</td>
<td>0.639470</td>
<td>12.89914</td>
</tr>
<tr>
<td>Log(US GDP)</td>
<td>0.108391</td>
<td>2.751962</td>
</tr>
<tr>
<td>Log(gross domestic capital formation)</td>
<td>0.136948</td>
<td>7.320088</td>
</tr>
<tr>
<td>Constant</td>
<td>2.698840</td>
<td>9.482164</td>
</tr>
</tbody>
</table>

R-squared: 0.995946
Adjusted R-squared: 0.995768
S.E. of regression: 0.011479
Durbin-Watson stat: 1.557875

^aexcept for the US GDP, Php:Aus$, all variables are deseasonalized

RHS endogenous variable: $\log(\text{GVA in tourism-related services and goods})$
Instrument list: $\log(\text{number of long weekends})$; $\log(\text{per capita GDP})$;
$\log(\text{Php:Aus})$;
dummy energy crisis in 1991 and 1992; dummy coup attempt in Q3 1987
$\log(\text{gross domestics capital formation (5 qtr lag)})$;

Equation 10
Dependent Variable: $\log(\text{Total Employment})^a$
(Q1 1986- Q4 2003)
Procedure: Two-Stage Least Squares

Righthand side variable which is treated as endogenous:
$\log(\text{non-agriculture employment})$

Instrument list: $\log(\text{number of long weekends})$
dummy coup attempt in Q3 1987 (1 qtr lag)
$\log(\text{minimum wage})$
$\log(\text{GVA in non-agriculture sector})$
$\log(\text{labor force})$
dummy energy crisis in 1991 and 1992
1. Gross domestic production is very sensitive to TRSG. For every 1 percent change in TRSG, GDP rises by 0.63%. As expected, an improvement in the world economy has windfall effect on local production and capital formation boosts domestic production, the latter consistent with the prediction of the Solow growth model.

2. Total employment exhibits path-dependence, with the presence of autocorrelation in year-on-year employment levels. Based on the specification above, the most significant driver of total employment is agricultural production. This is just a validation of an observable fact about the Philippine labor market. Industry and services employment, though at a lower scale, also boosts total employment.

### VI. CONCLUSION

1. Holiday economics based on empirical investigation seem to have a negative or at best, an insignificant impact on level of tourism activities and on employment. This could be due to the fact that with longer weekends, production has greater probability of being stopped by firms to avoid incurring high cost of overtime pay and this leads to a fall in employment and consequently, loss in disposable income;

2. The loss in disposable income undermines any potential positive effect of longer holidays in the economy.

3. Outside the direct cost of recreation, transportation cost plays the most significant impact on tourism and therefore pose as the biggest hurdle in the decision to travel
out-of-town. This could be validated based on the impact of the current promotional pricing policies of major domestic airline on the demand for tourism travel within the country. The significance of transportation cost is specially magnified in the archipelagic nature of the country.

4. Peace and order problem, like the Abu Sayyaf kidnapping, is not a major deterrent to tourism presumably because this is associated only to certain areas. Domestic disturbance such as coup attempts and energy crisis is more effective in halting recreational activities. People maybe deterred by, not as much as a threat to physical safety, but a cause to worry about the future. Financial prudence is practiced when crisis is at hand, and therefore recreational activities are postponed.

5. The Filipino, though highly gregarious and more susceptible to recreational activities, remains unresponsive towards out-of-town traveling. Insufficient disposable income, as well as the high cost of forgone income attendant to leisure, remains to be a big consideration.

6. The result of this study is consistent even when applied to those working in the public sector. The Consolidated Report on the Implementation of the Four-day Work Week in the Bureaucracy (April to May 2002) by the Civil Service Commission showed that overall, 57.9 percent of all agencies covered implemented the 4-day workweek.

To quote from the report: “a great number/percentage of respondent agencies from 6 regions (1,2,8,11, Caraga, NCR) which provided statistics on this item agreed that the policy did not achieve its objective of promoting domestic tourism. When asked whether they think the policy achieved its objective, the chief reasons for those who answered “no” are the following:

1. Financial constraints
2. Engagement in other activities e.g. domestic concerns, income-generating activities, personal matters
3. Inaccessibility of tourist spots
VII. Recommendation

As people are likely to be bogged down from enjoying the lengthened vacation by (1) costs associated with tourism and (2) disposable income, the administration may have to deal with these concerns first before it relies on holiday economics as policy to boost employment and consumption in the country.

Instead of using policies which could have large collateral damages especially on low income workers, the administration could look into ways of reducing the high transportation costs, particularly the airline industry, improving tourism facilities and ensuring a brighter outlook for the economy.
References

Publications


Unpublished materials


Downloaded files from the internet (accessed September 7, 2006)


