

U.S. Producer Price Index for Software
Publishing
NAICS 511210

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Agenda

- Definition of the service being priced
- Pricing unit of measure
- Market size
- National accounts concepts
- Pricing methods
- Quality adjustment
- Evaluation of comparability with turnover/output measures
- Summary

Definition of the Service

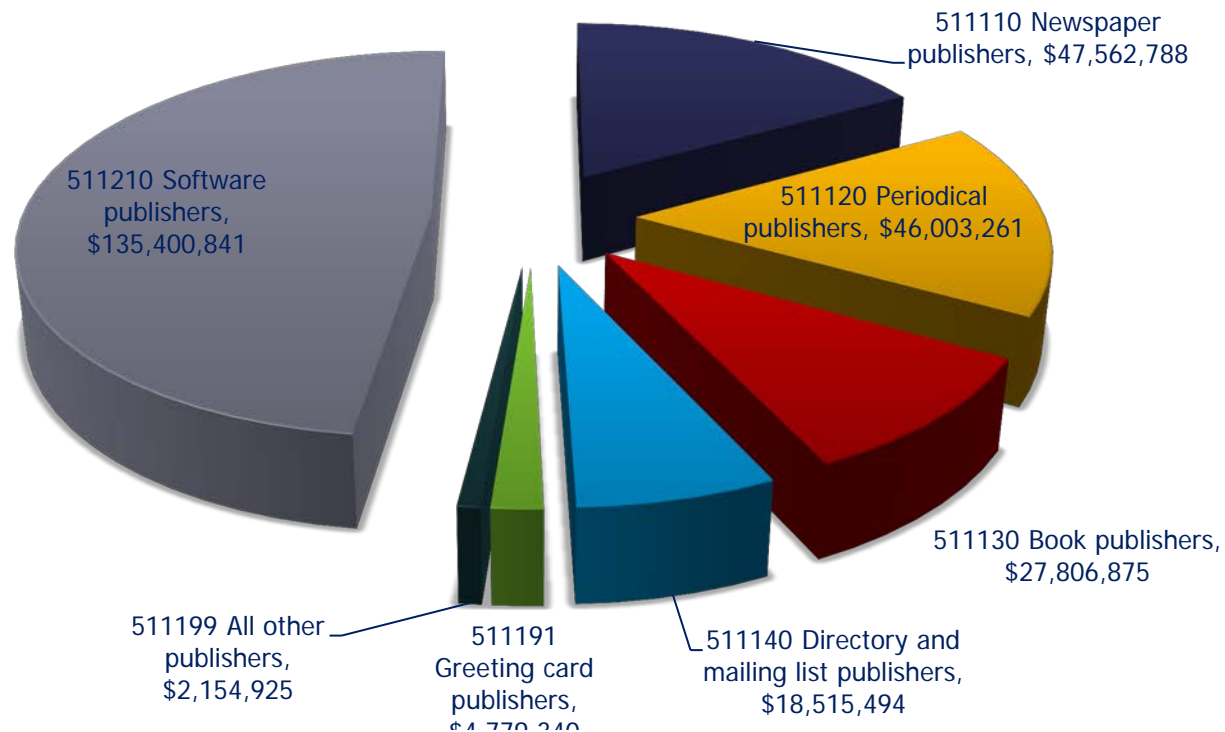
- Primary output is the provision of computer software and related services
- Industry activity includes:
 - The sale of licenses granting customers the right to use standard (non-customized) software programs
 - Related software support services such as training, technical support, product updates, etc.
 - Software maintenance
 - Bundling of software support services for a set time period
 - Renewable agreement

Pricing Unit of Measure

- Unit of measure for software license sales is typically **per license** or **per transaction**
- For related services such as consulting, training, technical support, and installation, the unit of measure is **per engagement**
- For renewed maintenance transactions, the unit of measure is typically **per year**

Market Size

NAICS 511210 accounts for roughly 48% of turnover in the U.S. for NAICS Sub-sector 511, Publishing Industries (except Internet) according to the 2007 Economic Census (all figures in \$1000s)



National Accounts Concepts

- Sales of system and application software are included in fixed investment accounts
- Game software is included as personal consumption, not in the fixed investment accounts
- The U.S. calculates a distinct index (5112105) that is exclusive of sales of game software to assist in the deflation of gross fixed capital in the national accounts (2008 SNA, p. 207)

Pricing Methods – Unit Value

Unit Value Price – Preferred Type of Price

Unit value prices should be isolated to a specific license type, software and buyer type (end user, distributor, reseller, etc) to limit shifts in average price due to product or buyer mix

Unit Value Price – Calculations

$$\text{Unit Value Price} = \frac{\text{Total turnover from all sales}}{\text{Total number of licenses sold}} \quad \text{OR} \quad \text{Unit Value Price} = \text{List Price} * \text{Average Discount, where}$$

$$\text{Average Discount} = \frac{\text{Total actual turnover}}{\text{Total turnover if sold at list price}}$$



Most appropriate for packaged software sales



Most appropriate for enterprise software sales

Pricing Methods – Unit Value

Advantages of Unit Value Prices

- Captures all discounting
 - Because software has minimal marginal production costs, it is often heavily discounted in order to capture sales
 - Reflects month-to-month changes in pricing caused by demand and firms' marketing and sales strategies

Disadvantages of Unit Value Prices

- Often unavailable in the current pricing period and may cause lags in data reporting
- Susceptible to shifts in buyer mix

Pricing Methods

Other Types of Prices

Component prices

- Used for enterprise software configurations that are transacted regularly
- The respondent is asked to provide the price charged to sell the selected licensing configuration to a similar buyer each reporting period

Direct prices of repeated services

- Used for packaged software transactions, technical support, and other software services in which the same product is transacted regularly

Model prices

- Used when products are transacted infrequently
- The respondent is asked to estimate the price charged if the selected licensing configuration or service were to be sold to a similar buyer each reporting period
- Often used to price renewed software maintenance transactions

Renewed Maintenance Pricing Methodology

- The configuration and price for an original license sale transaction and the price charged to renew maintenance for a second year is collected
- Each reporting period, the respondent is asked to estimate:
 - ▶ 1) the price that would be charged if the original software and first year of maintenance had been purchased one year prior to the repricing period
 - and**
 - ▶ 2) the price to renew software maintenance for the selected transaction in the current month

Renewed Maintenance Pricing Methodology

- It can be difficult for survey respondents to estimate prices for renewed maintenance contracts on software licenses originally transacted one year earlier
- In response, U.S. PPI developed a strategy which provides respondents with an estimate of the updated price of the referenced software

Renewed Maintenance Pricing Methodology

- The month and year the original license and first year maintenance sale occurred are collected initially
- Each reporting period, the price of the software license and corresponding first year maintenance are adjusted by the appropriate PPI software publishing index
- This provides the respondent with an estimate of what the price of the initial purchase would have been if the selected transaction had occurred 12 months prior to the repricing month

Renewed Maintenance – Example

- ▶ A renewed maintenance transaction occurring in March 2013 is collected (March 2013 is the base period for repricing in this example)
- ▶ The details of the original license sale (which occurred in March 2012) and first year maintenance price are collected along with the renewed maintenance price

Renewed Maintenance – Example

Sample item description (base period – March 2013)

Renewed maintenance for software purchased one year ago. Vertical market application software publishing. Software A. Version 4.5. Client ID: Client Z. Client type: business.

License description	Quantity	Price per unit	Total
Server license	2	\$10,000	\$20,000
Client license	15	\$2,000	\$30,000
Total price of all licenses:			\$50,000
Percent of license price charged for first year maintenance:			20%
First year percentage-based maintenance price:			\$10,000
Escalator applied to first year maintenance price:			6%
Total maintenance price for year 2:			\$10,600

Renewed Maintenance – Example

- In April 2013, respondent is asked to provide the price charged to renew software maintenance if the software and first year maintenance had originally been purchased one year earlier in April 2012
- To aid in reporting, BLS provides an estimate of the April 2012 license price
- The March 2012 license price is multiplied by the change in the **Other application software publishing** PPI from March 2012 to April 2012 (+1.5 percent for the purposes of this example)

Renewed Maintenance – Example

Sample item description (current period – April 2013)

Renewed maintenance for software purchased one year ago. Vertical market application software publishing. Software A. Version 4.5. Client ID: Client Z. Client type: business.

License description	Quantity	Price per unit	Total
Server license	2	\$10,150	\$20,300
Client license	15	\$2,030	\$30,450
Total price of all licenses:			\$50,750
Percent of license price charged for first year maintenance:			20%
First year percentage-based maintenance price:			\$10,150
Escalator applied to first year maintenance price:			6%
Total maintenance price for year 2:			\$10,759

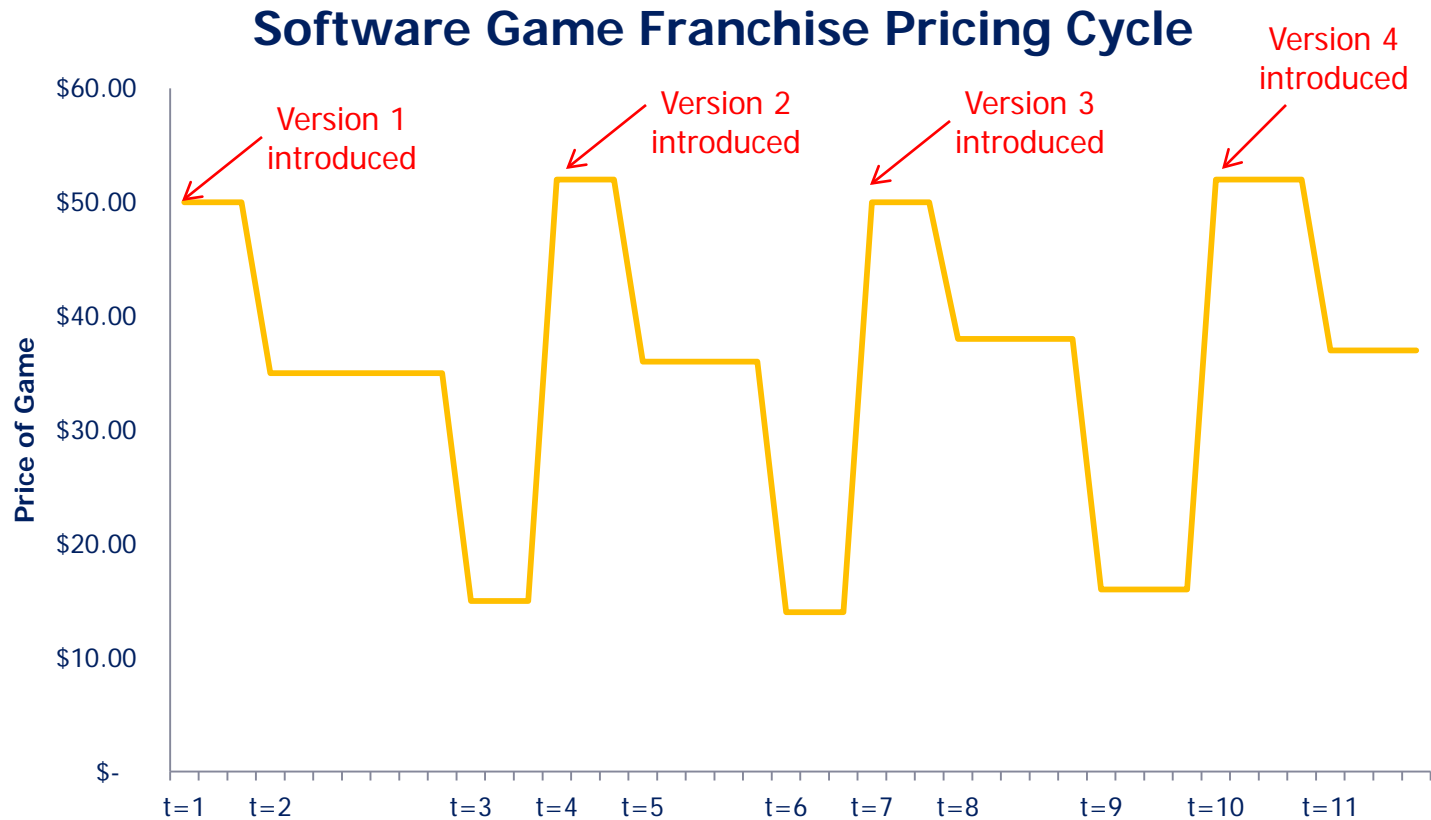
Quality Issues

- Because newer versions of software programs typically introduce new features and have increased functionality, they are not directly comparable to prior versions
- When possible, the price basis of the software is adjusted using production cost data to account for the change in quality associated with the new version
 - Responding establishments are asked to estimate these associated development costs
 - The development costs are divided by the number of units of the new version that are expected to be sold
 - If the number of expected sales is not available, the number of units of the old version sold is used as a proxy

Quality Issues - Games

- Software games are often marketed as a series franchise in which the characters face a new adventure or new sports season with the release of each new game title within the series
- Game franchises exhibit cyclical price trends – each new game or version is released to the market at a price point which falls over time, but then returns to a higher level with the release of the next title or version

Quality Issues - Games



Quality Issues - Games

- The U.S. methodology follows a specific software game from its initial release until the next version of the game within the franchise is released
- The U.S. substitutes to the newly released title and directly compares the price of the previous version to that of the new release if the quality of the software is effectively equivalent

Quality Issues - Games

- By directly comparing the prices of the old and new title, a price increase usually occurs during the month in which the substitution to the new edition is made
- Directly comparing prices and showing the price increase preserves the cyclical pattern by which games are marketed and priced
- If the new game is not considered to be a close or comparable substitute with the old game, the prices cannot be directly compared
- Quality adjustments that occur between the prices of the old and new game are applied by comparing the prices of the games when they are at similar stages in the game lifecycle

Evaluation of Comparability with Turnover/Output Measures

- Every five years, the U.S. Census Bureau publishes turnover data for the software publishing industry in the Economic Census
 - ▶ more detailed product line data than the SPPI
 - ▶ broad product lines largely match the SPPI
- The Census Bureau also publishes quarterly turnover data for the software publishing industry
- The concept of output for the software publishing sector is harmonious between the U.S. PPI, the Census Bureau, and the Bureau of Economic Analysis

Summary

- The U.S. PPI preferred pricing methodology attempts to capture discounting in the software publishing industry by offering two methods to collect unit value prices
- The U.S. assists respondents in reporting renewed maintenance prices by providing estimates of the historical license sale prices used in these calculations
- The U.S. quality adjusts transactions when enhanced functionality is added to software products, using producer cost data provided directly by respondents when available
- Software games are typically directly compared when substituting to new titles within a series in order to preserve the cyclical pricing pattern within a game franchise

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