



University of California  
Agricultural Issues Center

# Pending Regulations on Hen-Housing to Affect California Producers and California Consumers

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## Issue

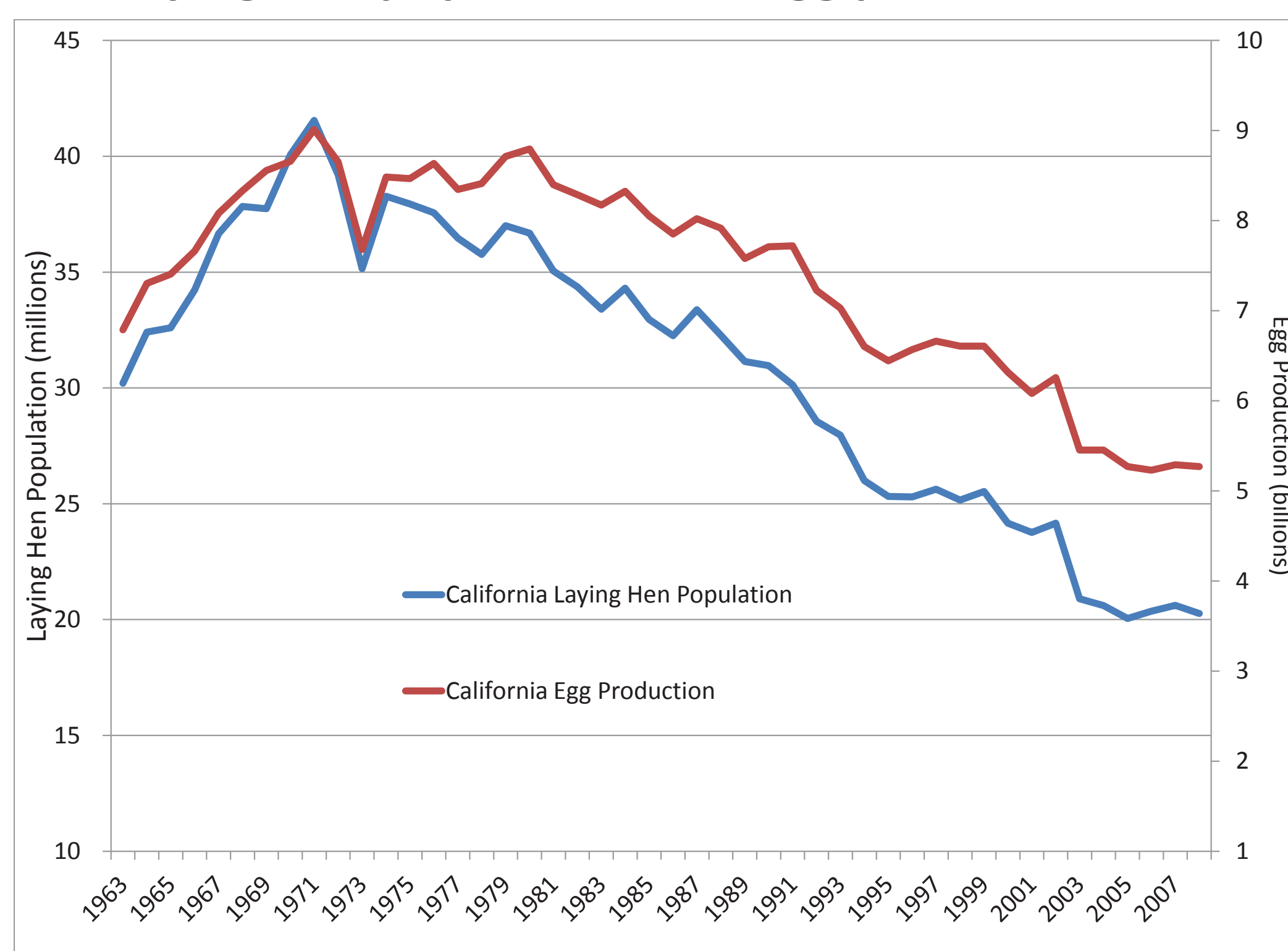
The Treatment of Farm Animals Statute passed by California voters as Proposition 2 in 2008, takes effect on January 1, 2015. It specified the minimum space for egg-laying hens (and selected other animals) may be confined:

*“a person shall not tether or confine any covered animal, on a farm, for all or the majority of any day, in a manner that prevents such animal from:*  
(a) Lying down, standing up, and fully extending his or her limbs; and  
(b) Turning around freely.

A year after the Treatment of Farm Animals Statute, assembly bill 1437 (AB 1437) which was introduced in July 2010, prohibits the selling of shelled eggs for human consumption in California produced by egg-laying hens on farms not in compliance with California’s Treatment of Farm Animals Statute. It passed in the California assembly in May 2009 and the Senate in June of 2010.

Detailed economic analysis of Proposition 2 showed that the impact was to shift most egg production out of California, but otherwise have little impact on the price of eggs or cost to consumers. The passage of AB 1437 changes the competitive situation for California producers. One way to meet the new California standard is to produce eggs using a non-cage or barn system. The cost analysis here is based on that alternative.

## California laying hen population and egg production, 1963-2007



## California and U.S. Egg Production

The California egg industry produces almost five billion eggs per year from almost 20 million laying hens. Value of production was about \$213 million in 2006 and about \$337 million in 2007, due to much higher egg prices. Major production comes from San Diego, San Bernardino and Riverside Counties in Southern California; Merced, Stanislaus and San Joaquin Counties in the Central Valley; and Sonoma County on the North Coast.

California is a substantial net importer of eggs produced in other states, with about one third of the shell eggs consumed in California produced out of the state. Shipments into California come from a broad portfolio of states including Iowa, Minnesota, Utah, Missouri, Michigan and several other important sources.



## Production Cost and Retail Price Differences across Systems

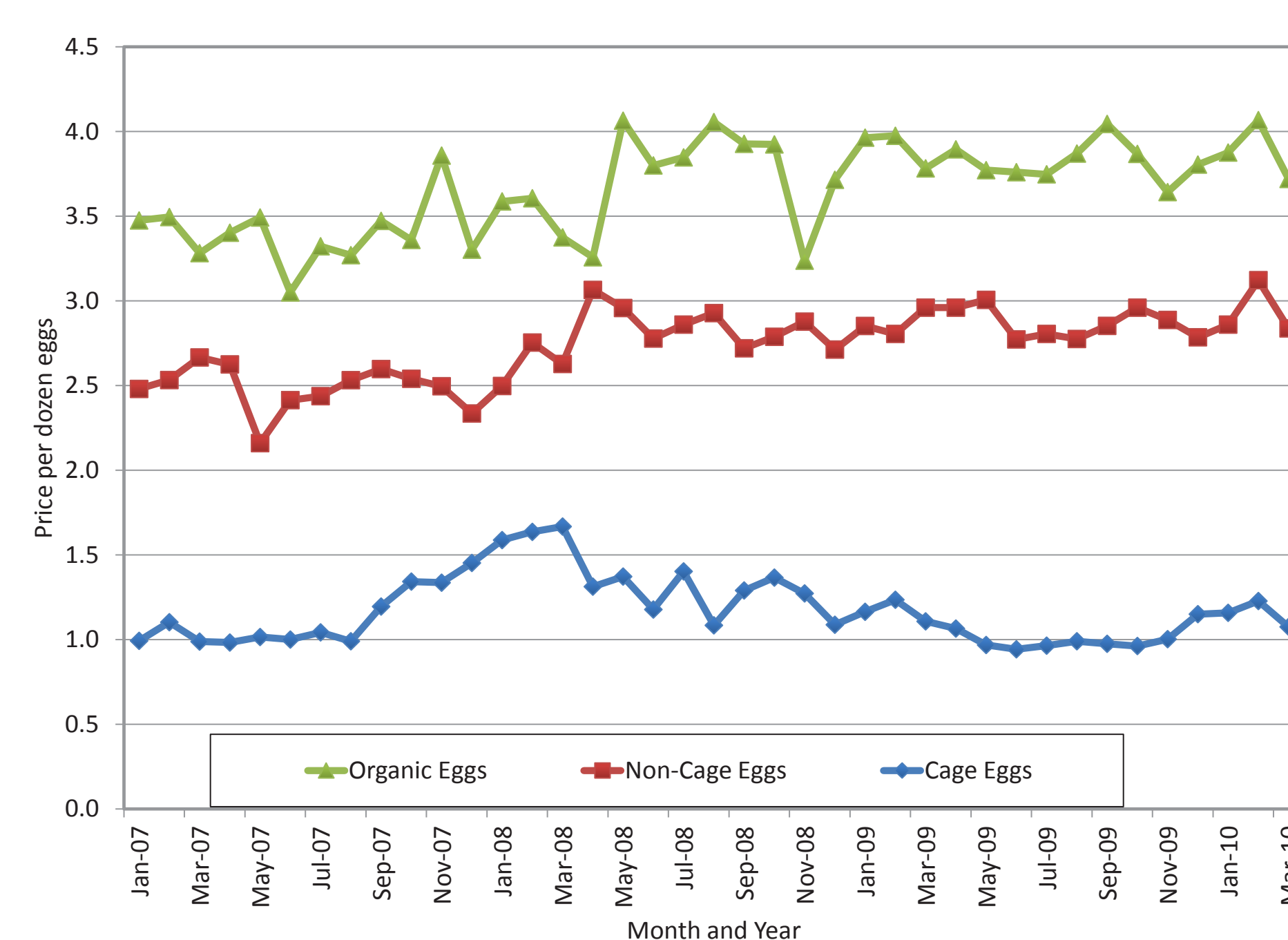
Feed usage per dozen eggs is considerably higher in non-cage systems than in typical modern cage systems. The greater freedom of movement allowed by the non-cage system increases laying hens’ physical activity, and the lower stocking density and open space reduce the efficiency of maintaining optimal house temperatures.

Also, producers report a higher mortality rate for non-cage hens, which results in a loss of production over the lifespan of the flock.

One worker can usually oversee more than 100,000 caged laying hens, possibly achieving labor costs as low as one cent per dozen. In comparison, a worker in a non-cage operation will typically manage 30,000 hens. Moreover, eggs from non-cage systems are more likely to be uncollectable, downgraded or unmarketable because some of these eggs are laid outside of the nest box (so-called floor eggs), where they may be eaten by the hens or become cracked, dirty, and/or contaminated with bacteria.

The range of estimates presented here incorporates the experience of California farms that produce eggs using both conventional cage housing systems and non-cage systems.

## Monthly retail price (US\$) of 1 dozen large shell eggs by type, January 2007 to March 2010



Non-cage and other specialty eggs (including organic) command a premium in U.S. and California retail markets, reinforcing the information from estimates of cost differentials. The spread between retail prices and the prices received by producers are also higher for specialty eggs.

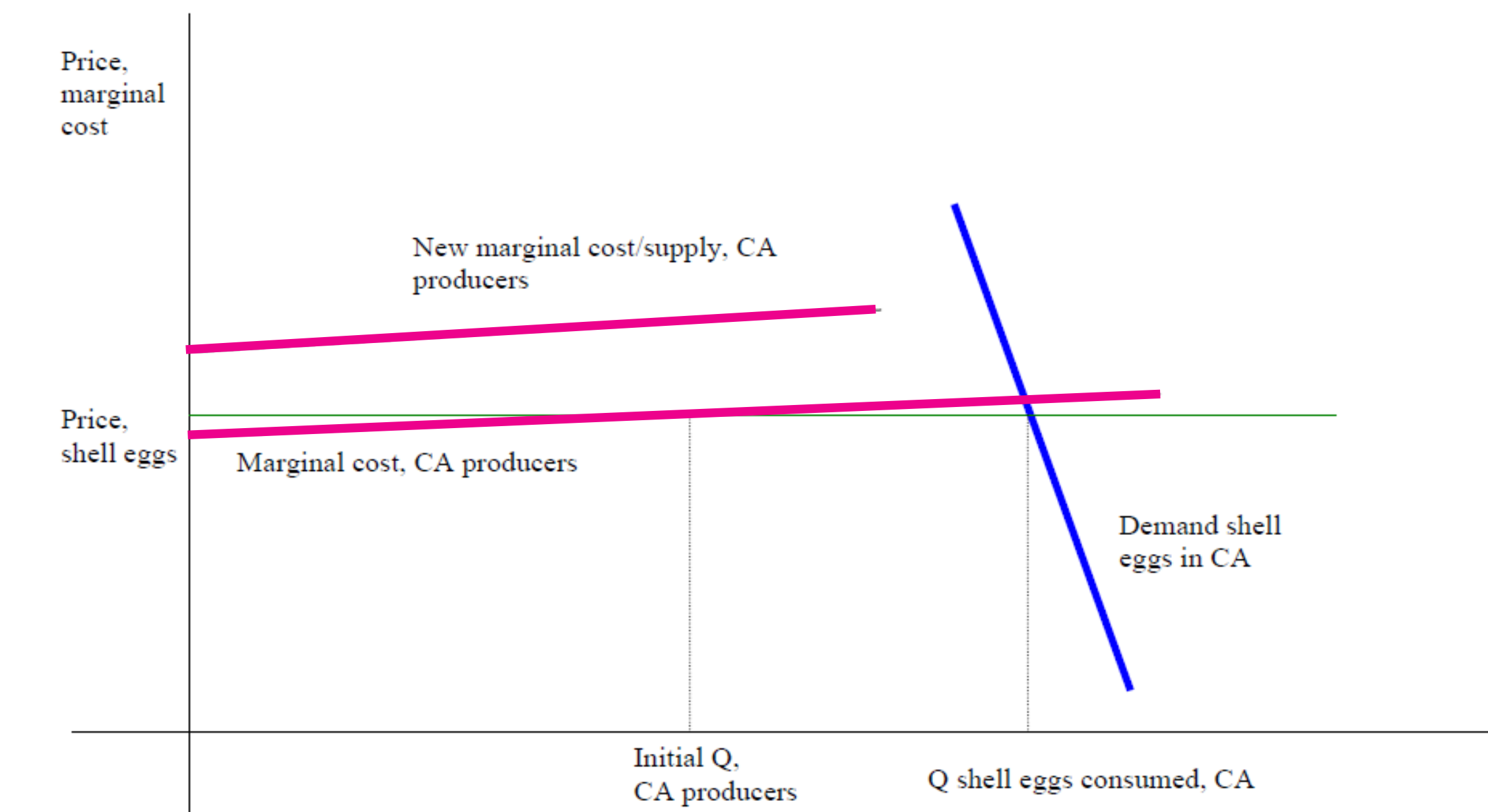
## Comparison of production costs between cage production system and non-cage system in cost per dozen

Production factor	Cage production system range and median (dollars per dozen)	Non-Cage production system range and median (dollars per dozen)	Cost Differential Non Cage minus Cage System using mid-points	Cost differential Non-Cage minus Cage System using low costs
Pullets	0.09 - 0.11 0.1	0.14 - 0.17 0.155	0.55	0.05
Feed	0.28 - 0.45 0.365	0.35 - 0.50 0.425	0.06	0.07
Housing	0.05 - 0.14 0.095	0.09 - 0.37 0.23	0.135	0.04
Labor	0.03 - 0.04 0.035	0.07 - 0.19 0.13	0.095	0.04
Total Cost	0.57 - 0.92 0.745	0.97 - 1.13 1.05	0.305	0.4
Percentage cost difference			0.305/0.745 = 41%	0.40/0.57 = 70%

## Illustration of Economic Effects of the Treatment of Farm Animals Statute

The figure below shows the supply and demand considerations in the market for fresh shell eggs sold in California. On the supply side, most of the initial quantity is from production in California, shown as “Initial Q, CA producers”. Shell eggs shipped into California is implicit in the figure and makes up the difference between the shell eggs consumed in California and those produced in California. With these market conditions, a substantial increase in the marginal cost of production due to Proposition 2, up to the curve labeled “New marginal cost/supply, CA producers,” would cause production in California to fall to zero, but price to consumers would be largely unaffected.

## Market effects of restrictions on using cage housing for eggs produced in California

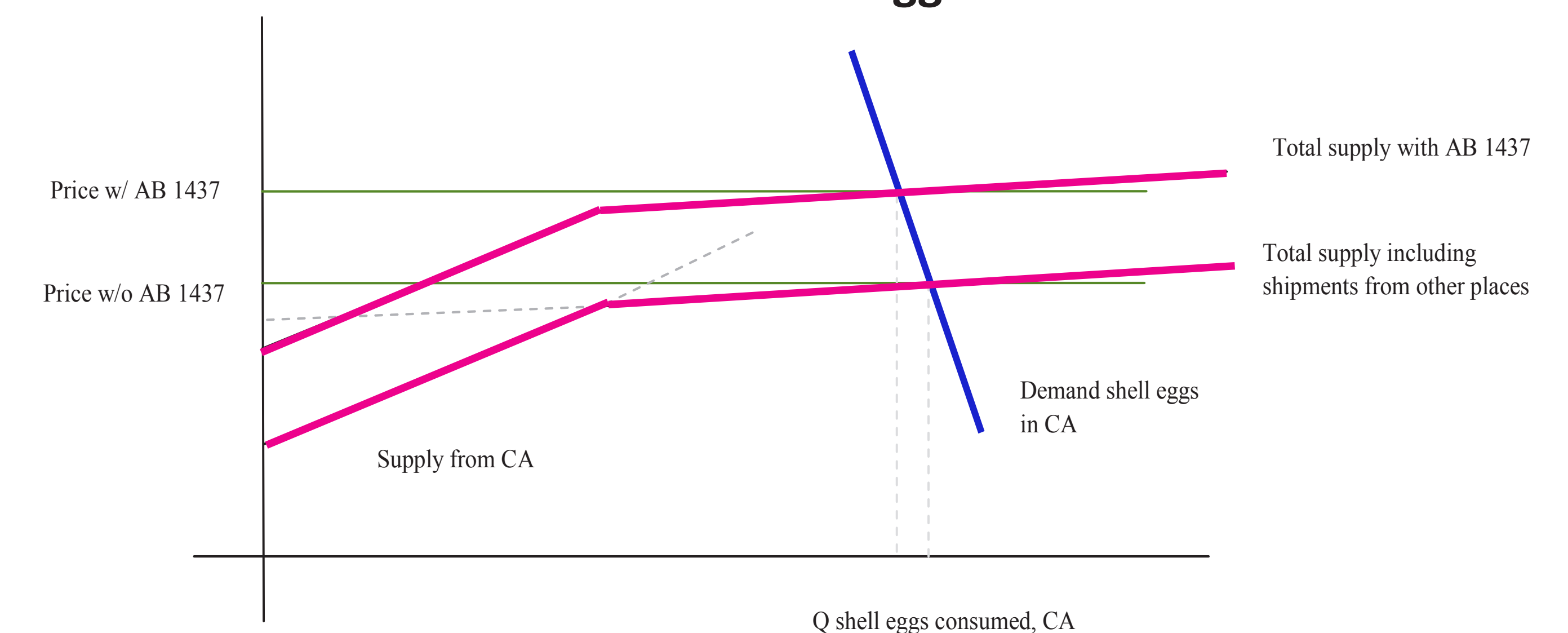


On its own, the Treatment of Farm Animals Statute would not affect how the eggs consumed in California would be produced. Those eggs would continue to be produced using cage housing systems outside of California, meaning that the statute would not affect how eggs would be produced, only where eggs would be produced.

## Economic Effects of AB 1437

AB 1437 mandates that non-cage eggs – previously a specialty type of egg – become the only type of egg that can be marketed in California. Under this scenario, egg production in California would continue with reduced volumes, and consumers would pay more and consume fewer eggs because of the higher price. The figure below shows that under AB47 costs of production for all farms supplying the California market would rise, leaving the relative competitiveness of California farms relatively unaffected. Under this law, the price of eggs in CA will rise and consumption will fall.

## Market Effects of Restrictions of Eggs Consumed in California



More research is needed to better understand cost of production impacts of the upcoming regulation at the farm level. Additional research is also needed to understand how the farm to retail margin may respond to implied changes in egg regulations. In particular, the margin for the eggs meeting the new California standard may decline as that product becomes the dominant egg product in the California market.

## Further Reading

Mench, J.A., D. A. Sumner, and J. T. Rosen-Molina. 2011. “Sustainability of egg production in the United States—The policy and market context.” *Poult. Sci.* 90:229-240. Available at: <http://ps.fass.org/cgi/content/abstract/90/1/229>

Sumner, D.A., H. Gow, D. Hayes, W. Matthews, B. Norwood, J. T. Rosen-Molina, and W. Thurman. 2011. “Economic and market issues on the sustainability of egg production in the United States: Analysis of alternative production systems.” *Poult Sci.* 90:241-250. Available at: <http://ps.fass.org/cgi/reprint/90/1/241>

Sumner, D. A., W. A. Matthews, J. A. Mench, and J. T. Rosen-Molina. 2010. “The economics of regulations on hen housing in California.” *J. Agr. Appl. Econ.* 42. (3). Available at: <http://ageconsearch.umn.edu/handle/92577>.

Sumner, D. A., J. T. Rosen-Molina, W. A. Matthews, J. A. Mench, and K. Richter. 2008. “Economic effects of proposed restrictions on egg-laying hen housing in California.” University of California Agricultural Issues Center, Davis. Available at: [http://aic.ucdavis.edu/publications/eggs/egg\\_initiative.htm](http://aic.ucdavis.edu/publications/eggs/egg_initiative.htm)