

# **On the Effectiveness of the California Enterprise Zone Program**

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## **Abstract**

Recent empirical evidence (Neumark and Kolko, 2008) finds that the California Enterprise Zone (EZ) program does not increase employment. The result is in stark contrast to other empirical work (Ham, et al, 2009), which examines economic impact beyond simple employment statistics, showing that EZs increase employment and wages, and decrease poverty levels. Subsequently, what economic data should be examined in assessing the effectiveness of an EZ program? This paper provides a framework for understanding the effectiveness of the California Enterprise Zone (EZ) program which encompasses more than simple employment data. Examining the impact on a single firm, EZ labor tax credits should (depending on elasticities) result in both increased employment and capital. However, depending on labor market conditions, employment increases may be dampened as part of the tax credit is bid away in terms of higher wages; i.e., the credit results in higher wages to employees. If a single firm is located in an area which becomes an EZ, employment may or may not change but other aspects of firm profitability may occur. In such a case, increased profitability may induce the firm to remain in the EZ even when pre-tax returns are higher in another area; in this case, no employment effects may be observable even though the firm is made stronger/more efficient by the EZ credit. If a firm is located in a non-EZ area, it will locate to an EZ area only if the after-tax returns are higher than transaction (moving) costs.

The case of a multi-location firm is more complex, and the effects of EZ labor tax credits are muted by California's unitary tax structure. If EZ credits increase in California, increases in employment are dampened due to collateral increases in the tax base due to

apportionment factors. **The paper concludes that in order to examine the economic impact of the EZ program, employment, wage levels, business retention, and return to owners must all be examined.**

## Introduction

Recent empirical research (Neumark and Kolko, 2008) focus on employment and concluded that the California EZ program did not increase employment. In contrast, Ham et al (2009) find that EZ programs (both in California and other states) do increase employment. They also find that EZ programs increase wage and salary incomes and household income, and decrease poverty rates. Similar results were found for California by Imrohroglu and Swenson (2006).

The purpose of this paper is to provide a framework for analyzing the effects of the California EZ program. California's EZ program encourages job growth through job tax credits, and capital formation with lender net interest deduction and sales/use tax credits for certain machinery and equipment. To properly assess the EZ program, all of these incentives should be examined—not just hiring credits and their effects on employment.

Nonetheless, this paper focuses (for now) on the hiring credit. Examining the impact to a single firm, EZ labor tax credits should (depending on elasticities) result in both increased employment and capital. However, depending on labor market conditions, employment increases may be dampened as part of the tax credit is bid away in terms of higher wages. If a single firm is located in an area which becomes an EZ, employment may or may not change but other aspects of firm profitability may occur. In such a case, increased profitability may induce the firm to remain in the EZ even when pre-tax returns are higher in another area; in this case, no employment effects may be observable. If a firm is located in a non-EZ area, it will locate to an EZ area only if the after-tax reruns are higher than transaction (moving) costs.

The case of a multi-location firm is more complex, and the effects of EZ labor tax credits are muted by California's unitary tax structure. If EZ credits increase in California, increases in employment are dampened due to collateral increases in the tax base due to apportionment factors.

*This paper concludes that in order to properly examine the economic impact of the EZ program, employment, wage levels, business retention, and return to owners must all be examined.*

## The Simple Setting: One Firm With One Location

Consider a firm which is located in an area which becomes an EZ. The firm produces output,  $X$ , with capital ( $K$ ) and labor ( $L$ ) which are purchased at prices  $k$  and  $w$ , respectively. Before the EZ hiring credit, the firm optimizes  $K$  and  $L$  decisions based on the relative ratios of costs to marginal revenue products of capital and labor ( $MRP_K$  and  $MRP_L$ , respectively) are equated as follows:

$$MRP_K / MRP_L = K/L = k/w. \quad (1)$$

When an EZ hiring credit  $C$ , is introduced, the after tax price of labor falls to  $(1-C)w$  and (1) is adjusted to:

$$MRP_K/MRP_L = K/L = k/(1-C)w. \quad (2)$$

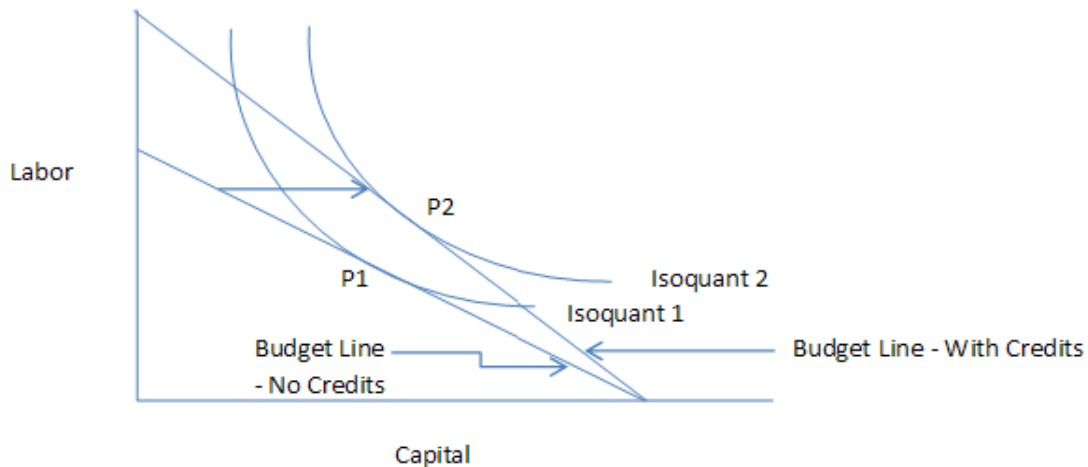
In most cases we can show that:

$$\frac{\partial L}{\partial C} > 0, \text{ and} \quad (3)$$

$$\frac{\partial K}{\partial C} > 0. \quad (4)$$

The *degree* to which the firm hires more labor depends on the elasticities of substitution, labor and capital prices, and the firm's revenue curve. In the simplest case— $L$  and  $K$  are Cobb-Douglas, the firm is a price taker at fixed  $w$  and  $k$ , and the firm can move to a higher isoquant (i.e., it can produce and sell more output with a larger labor force), and an income and a substitution effect occur as shown graphically in Figure 1. Here, the firm substitutes labor for capital (i.e., it hires more workers) but an income effect also allows the firm to buy more capital. Thus, to examine the effects of the credit, one must examine both labor and capital increases.

**Figure 1**  
Effect of EZ Hiring Credits on Labor  
and Capital (Firm Has No Output/Sales Constraint)

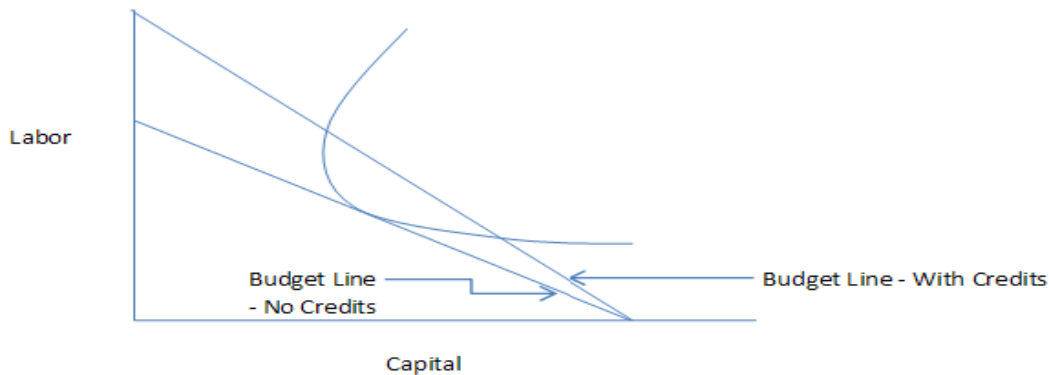


**EXAMPLE.** XYZ Service Company has a budget for three secretaries. After the area it is located in is declared an EZ, it now has a budget for an extra secretary due to hiring credits on its existing secretaries. The company will also acquire extra office equipment (desk, phone, and computer) to support the secretary. Here, the EZ hiring credit results in both a labor and capital increase.

However, if the firm faces a fixed revenue function (it cannot sell more output, or its demand curve is iso-elastic), the firm may actually increase or decrease either  $K$  or  $L$ ,

or conceivably increase neither, as shown in Figure 2. In the case where it increases neither, the firm will invest the money (so long as the firm can earn a higher rate of return than its owners, so a dividend will not be paid from the tax credit) elsewhere—facility improvements, advertising, R&D, etc. *Thus, to examine the effect of the EZ tax policy here, we need to examine labor, capital, and other investment changes at the firm level.*

**Figure 2**  
Effect of EZ Hiring Credits on  
Labor and Capital (Firm Has Binding  
Output/Sales Constraint)



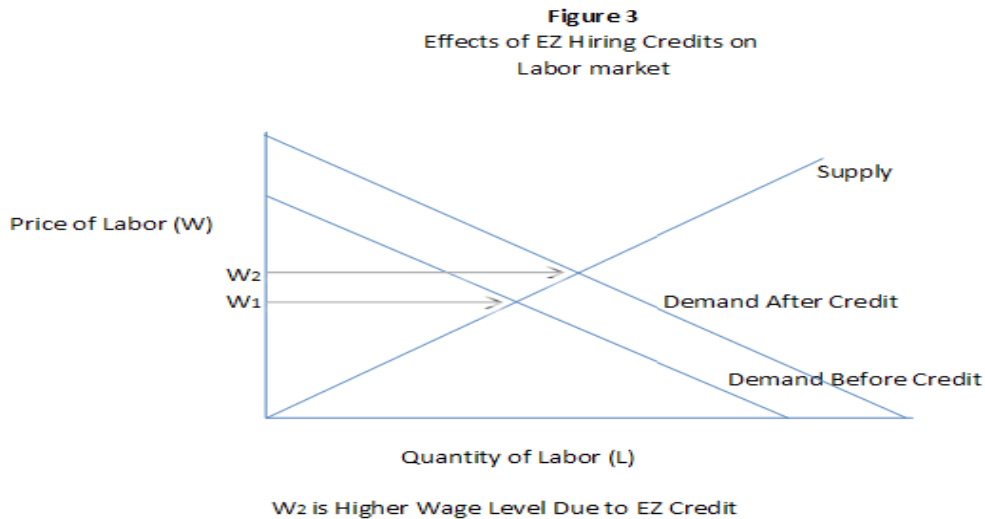
NOTE: Darkened Area Represents Feasible Producing Choices After Credits

**EXAMPLE 2.** XYZ Service company has a budget for three secretaries. After the area in which it operates is declared an EZ, the company receives hiring credits for its secretaries. But, the company is unable to acquire any additional clients and therefore does not need to hire an additional secretary with the new funds. Instead, it uses the tax credit savings to invest in a badly needed telecom system, which improves office efficiency and profitability.

An interesting corollary of the above situation is the effect of tax policy on firm retention in the area. Suppose that economic conditions are such that is more profitable for the firm to move to a non-EZ area, say because rents are cheaper, lower regulatory costs, etc. If the value of the EZ credits exceeds any non-tax benefits the firm might receive in the non-EZ area, it would not move. In this case, examining labor force changes in response to EZ policy need to consider what the firm did not do (i.e, labor force did not drop after EZ policy was instated). *Here, a finding that EZ policy was ineffective since employment did not increase would be misleading.*

Also, the credit can affect local labor markets and wage levels. That is, in certain cases, labor prices may actually be driven up since labor demand increases. If this is the case, some of the EZ credit will be bid away from firms and shifted to workers in the form of higher wages. Here, to examine the effects of EZ policy, *one must look at employment and wage levels.* A simple macro depiction of such price level effects (alternatively known a wedge or an “implicit tax”) are shown in Figure 3. In this case,

increased labor demand is actually dampened by an increase in price. EZ policy results in an increase to workers from  $w_1$  to  $w_2$ .



**Example 3.** ABC Electrical Company hires skilled electricians which it sends out to customers needing electrical work. Before the area it is located in was declared an EZ, it typically paid its electricians \$18 per hour. After the area became an EZ, its competitors were all able to hire additional electricians, but because there was a limited supply of such skilled workers in the area, workers asked for (and received) \$19 per hour. Here, the effects of EZ policy are partly reflected in increased wages to EZ employees.

Next, consider a firm that is not located in an EZ, but can move to an adjoining EZ. Assume that such a move does not disrupt its sales or production. It would make economic sense for the firm to move only if the extra tax credits from the EZ (discounted over time) exceed transactions costs, i.e., costs of moving (including potentially higher local rent costs). Here, we would expect firms to relocate only if they had relatively low transaction costs. These would be capital un-intensive firms such as services and certain retail operations. Here, a *reasonable test of the effects of EZ policy would focus only on such industries.*

### **The More Complicated Case: Multi-State Companies**

The case of a multi-state company is more complex due to the apportionment requirements under California's unitary combined reporting laws. Here, while EZ labor credits may induce additional EZ investment, there is a countervailing effect which increases the gross California income tax apportioned to the state. This is because

increased labor and capital factors in California result in more national taxable income being apportioned into the state.

In previous work (Swenson and Williams 2001; Swenson 2008) I examined the case of a multi-state firm and the effects of state tax rates and credits on resource allocation. The firm decides how much production to base in State 1 versus State 2 based on factor costs, tax rates, etc. Assuming it operates in unitary tax states (i.e., California) it maximizes after-tax profits as follows:

$$\text{Max } \pi = (1 - \tau_u) (a_1 Q_1 - b Q_1^2 + a_2 Q_2 - b Q_2^2 - w_1 (L_m + L_1) - w_2 L_2 - r (K_m + K_1 + K_2) - s Q_2) \quad (5)$$

subject to:

$$\begin{aligned} \phi(Q_1 + Q_2) &= Y_m = L_m^\alpha \cdot K_m^\beta, \\ (1 - \phi)Q_1 &= Y_1 = L_1^\alpha \cdot K_1^\beta, \text{ and} \\ (1 - \phi)Q_2 &= Y_2 = L_2^\alpha \cdot K_2^\beta, \text{ with} \\ \tau_u &= \frac{\tau_1}{4} \left( \frac{w_1 (L_m + L_1)}{w_1 (L_m + L_1) + w_2 L_2} + \frac{K_m + K_1}{K_m + K_1 + K_2} + 2 \cdot \frac{a_1 Q_1 - b Q_1^2}{a_1 Q_1 - b Q_1^2 + a_2 Q_2 - b Q_2^2} \right) \\ &+ \frac{\tau_2}{4} \left( \frac{w_2 L_2}{w_1 (L_m + L_1) + w_2 L_2} + \frac{K_2}{K_m + K_1 + K_2} + 2 \cdot \frac{a_2 Q_2 - b Q_2^2}{a_1 Q_1 - b Q_1^2 + a_2 Q_2 - b Q_2^2} \right). \quad (6) \end{aligned}$$

Note that the apportioned unitary tax,  $\tau_u$ , is the standard apportionment formula, adapted to the property, payroll, and sales parameters of the model. Sales are doubled-weighted in the apportionment formula. In examining (6), we see that the unitary tax is similar to a separate tax on each of sales, capital, and labor. Accordingly, if more labor or capital is located in either state, the income apportioned to that state will increase.

Next, examine effects of hiring credits. To control for pretax differences in wage levels, assume  $w_1 = w_2 = w$ . Define  $\chi_2$  as the credit rate in State 2, which assume is California. Assuming tax rates are the same between the two states (and substituting and rearranging) we get:

$$L_2 = \frac{\alpha r K_2}{\beta (1 - \chi_2) w}, \text{ and} \quad (7)$$

$$\frac{\partial L_2}{\partial \chi_2} > 0. \quad (8)$$

This, an EZ hiring credit will cause more labor to be employed in California. However, the analysis changes if California's tax rate is higher than the other state, or  $\tau_2 > \tau_1$ . Here, the increase labor employed in California is reduced by the relative ratio of the two state tax rates due to additional income apportioned to the higher rate state

*(California). The implication for empirical work which examines the effectiveness of the California EZ program is that the employment effects of the hiring credit is reduced (for multi-state companies) not because of the EZ policy itself, but because California is a unitary state and its 8.84 per cent corporate tax rate is higher than that of most other states.*



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