Migration Letters

Volume: 21, No: 2, pp. 27-38

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)
www.migrationletters.com

Impact of Active Labor Market Programs on Immigrant and Native Workers

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Abstract

Active Labor Market Programs (ALMPs) such as job training are aimed at improving the productivity of immigrant workers, thereby increasing their wages and employment opportunities. However, they may substitute and harm the labor outcomes of native workers. In the United States (US), AMLPs are provided to both native and immigrant workers; however, their total effect on the labor outcomes of natives are ambiguous. This study examines the direct and indirect impact of ALMPs using difference-in-differences analysis and exploiting varying establishment dates of institutions in the US. The results revealed that ALMPs reduced wages and employment rates of native workers through the immigrant influx.

Keywords: *labor markets, Active Labor Market Program, human capital, international migration, wage effects.*

1. Introduction

Recently, immigrants have constituted a large share of the United States (US) labor market, and the immigrant influx is socially important.

Immigration induces a supply shock in the labor market, and this affects the native workers' wages and employment rate. When native and immigrant workers are substitutable considering skill levels, the immigrant influx increases labor supply, resulting in lower wages for native workers (Borjas, 2003). Additionally, lower wages cause some native workers to exit the labor market, decreasing the employment rate of native workers (Dustmann et al., 2017). Moreover, Ottaviano and Peri (2012) found that native and immigrant workers were not perfect substitutes. Additionally, labor policy institutions affect labor supply shocks on the wages and employment rate (Edo & Rapoport, 2019; Angrist & Kugler, 2003).

In addition to labor supply shock, the economic inequality of immigrants and native workers is an important social issue. Past literature showed that immigrants have had difficulty owing to under-evaluation, lack of social networking, and low English proficiency (Friedberg, 2000; Behtouri, 2008; Hendricks, 2018).

Active Labor Market Programs (ALMPs), such as vocational training, aim to improve the wages and employment rates of disadvantaged workers. ALMPs are expected to improve immigrant workers' skills and achieve assimilation. Sarvimäki and Hämäläinen (2016) found that the expansion of job training increased immigrant workers' wages and reduced

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expenditures on social benefits for them. Although ALMPs can increase productivity and reduce economic inequality, some immigrants face difficulty accessing ALMPs due to issues such as prejudice from the providers (Auer & Fossati; 2019). These barriers may affect migration decisions and the magnitude of the labor supply shock.

However, improving productivity may lead to a labor supply shock that negatively impacts other workers' wages and employment rates due to competition in the labor market. While ALMPs in the US are available to immigrants, the income inequality between native and immigrant workers will continue to widen if immigrant workers have difficulty accessing the ALMPs. The marginal product of ALMPs is higher for immigrant workers than native workers, as the length of work experience is shorter for the former than for the latter. If both native and immigrant workers can access ALMPs equally, the difference in their productivity narrows. Conversely, if immigrant workers have more difficulty accessing ALMPs than native workers, wage inequality increases.

This study explored whether immigrant workers in the US face barriers to participating in ALMPs. Moreover, it examined the impact of eliminating these barriers on the wages and employment rates of immigrant and native workers. This study makes two major contributions. First, it captures the spillover effects of ALMPs. Existing literature shows that ALMPs positively impact the wages and employment rates of ALMP participants. Second, this study reveals that immigrants face barriers when trying to attend ALMPs. These barriers prevent them from entering the labor market of the host country.

The remainder of this paper is organized as follows: Section 2 describes the Job Training Partnership Act (JTPA) of 1982; Section 3 describes the Current Population Survey (CPS) and estimation model; Section 4 presents the results; and finally, Section 5 concludes the paper.

2. Background

The JTPA provided job training for disadvantaged workers who did not complete their education program or had low wages in the US. The Department of Labor (DOL, 2015) reported that the average annual JTPA budget was $4.4 billion (1994–1997) which represented a large portion of the training budget in the US. The JTPA provided job training, on-the-job training, and employment-assistant services. The Workforce Investment Act (WIA) replaced the JTPA in 2000 and prioritized universal access by serving all workers and emphasizing those with low-wages. Both the JTPA and WIA had similar job training goals. However, the WIA centralized their services with One-Stop Centers during 1995–2000 and aided non-English speakers and immigrants. Figure 1 shows the transition of ALMPs and the timing of the establishment of a One-Stop Center in each state. Abadie et al. (2002) found JTPA positively impacted participants' wages.

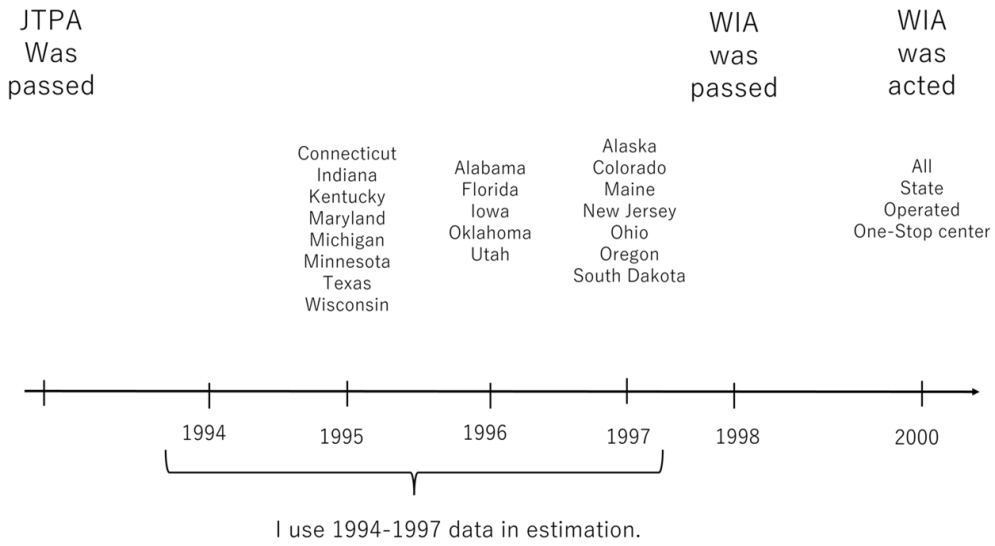


Figure 1. Timeline of US Job training for disadvantaged workers

3. Data and Identification

Based on previous studies (Edo & Rpoport, 2019), we proposed the following hypotheses:

1. Establishing One-Stop Centers improves the wages and employment of native workers, which is the direct impact.

2. Establishing One-Stop Centers reduces wages and employment of native workers through the immigrant influx, which is the indirect impact.

3. Establishing One-Stop Centers improves the wages and employment of immigrant workers.

This study used annual data from the CPS from 1994 to 1997 provided by the Integrated Public Use Microdata Series (IPUMS; Ruggles et al. 2020) to estimate the impact of the establishment of One-Stop Centers by conducting a difference-in-differences estimation. The IPUMS database includes variables such as annual wages, working weeks, employment status, and citizenship status.

Data were restricted to individuals aged 18–64 years to investigate the impact of One-Stop Centers on the workforce. I defined immigrants as non-citizens or naturalized US citizens using citizenship status.

Individuals were classified into 32 skill cells for each state based on the estimation models presented by Ottaviano and Peri (2012) and Edo and Rapport (2019). The skill cells were divided into four education groups and eight experience groups.[2]

I used the immigrant ratio $p_{it} = \frac{(\text{Immigrants})_{ijt}}{(\text{Natives})_{ijt}}$ as a proxy variable indicating the extent of immigrant influx, with skill cell i for state j and calendar year t. To account for the

[2] Education was categorized into groups as follows: less than high school, high school graduates, some college education, and college graduates or above. I categorized each education group into eight experience groups using five-year intervals. Based on Edo and Rapport (2019), I assumed that the ages of entry into the labor market for the education groups were 17 years, 19 years, 21 years, and 23 years, respectively. Years of experience were calculated by subtracting the entry age from the individual ages.

endogeneity bias caused by reverse causality with higher wages and employment rates inducing the immigrant influx, I used the two-step least squares (2SLS) method with distance from Mexico City as the instrument variable. Based on Smith (2012), I assume that the impact of Mexican immigrant workers on the US labor market was sufficiently large to use distance from Mexico City as the instrument variable.

The following equation was used:

$$p_{ijt} = \beta_1 \text{Dis} + \beta_2 \text{Dis}^2 + \beta_3 \mathbb{I} + \beta_4 \text{Dis} \times \mathbb{I} + \beta_5 \text{Dis}^2 \times \mathbb{I} + \eta_{ijt} \quad (1),$$

where D is the distance from Mexico City and η_{ijt} is the error term. If the impact of Mexican immigrants on the labor outcomes of native workers is significant, and locations farther away from Mexico City have fewer Mexican immigrants (lower p_{ijt}), then β_1 or β_4 should be a negative.[3]

I selected data from 39 states based on availability.[4] States were divided into two groups: those where One-Stop Centers were established before 1998 (treatment group) and those where they were established in 1998 or later (control group). The treatment group was further divided by the timing of the establishment of a One-Stop Center. Table 1 represents the list of states when a One-Stop Center are established.

Table 1. Treatment group.[5]

Treatment Year	State
1995	Connecticut, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Texas, Wisconsin
1996	Alabama, Florida, Iowa, Oklahoma, Utah
1997	Alaska, Colorado, Maine, New Jersey, Ohio, Oregon, South Dakota
Control	Tennessee, California, Illinois, Missouri, Nevada, Washington, Arkansas, Pennsylvania, Vermont, New York, South Carolina, Virginia, Delaware, Georgia, Hawaii, Montana, Nebraska, New Mexico

Table 2 presents the statistical descriptions, including: average immigrant rates, natural logarithms of native workers' weekly wages, natural logarithms of native workers' employment rates for the treatment group, and the averages of these three variables for the control group. The immigration rate increased year-by-year by 1% point in all groups. Overall labor outcomes increased in all groups. Thus, the wages and employment rates of native workers increased in the 1990s, when One-Stop Centers did not impact the US

[3] As distance from Mexico City is independent of wages and employment of native workers, this instrumental variable was considered appropriate enough to meet the exclusion restriction.

[4] The following articles describe when One-Stop Centers were granted: The US Department of Labor (Social Policy Association 1997; Department of Labor and Resource 2004a; 2004b; Fesko et al., 2002; U.S. Department Labor 2017; U.S. Department of Labor, 1997) as well as the annual reports of each state (State of Alabama 2012; Kelm & Cashen 1998; Pearson; State of Arkansas 2012; State of Vermont 2000; Pataki et al., 2002; State of Montana 2015; State of Hawaii 2011; New Mexico Department of Workforce Solution 2012) and several articles have reported on One-Stop Center timing (Capizzano et al., 2001; O'Shea & King 2001; John J. Heldrich Center for Workforce Development, 2002; The Joint Legislative Audit and Review Commission 2003; Clagett 2006; Derr et al., 2002).

[5] My definition of the treatment groups is based on the articles describing when One-Stop Centers were granted.

labor market. Next, I conducted a difference-in-differences (DiD) analysis to examine the causal impact of One-Stop Centers.

Table 2. Summary statistics.

Treatment Group				
YEAR	1995	1996	1997	Control
A: Immigrant Rate				
1994	0.08	0.10	0.09	0.13
1995	0.08	0.10	0.10	0.14
1996	0.09	0.11	0.10	0.14
1997	0.09	0.12	0.11	0.15
B: Log of Weekly Wage				
1994	6.11	6.05	6.16	6.10
1995	6.12	6.04	6.16	6.11
1996	6.13	6.04	6.12	6.11
1997	6.14	6.06	6.14	6.12
C:Log of Employment Rate				
1994	-0.06	-0.06	-0.10	-0.08
1995	-0.06	-0.06	-0.07	-0.06
1996	-0.06	-0.06	-0.09	-0.06
1997	-0.07	-0.05	-0.08	-0.07

Source: The ACS

As shown in Figure 1, the time of establishment of One-Stop Centers differed across states.

The following equation was used to evaluate the impact of One-Stop Centers and the immigrant influx:

$$y_{ijt} = \delta_{ij} + \delta_t + \theta\, p_{ijt} \times \mathbb{I}_{ijt} + \epsilon_{ijt,} \quad (3)$$

where δ_{ij} is the fixed effect of state i and skill cell j; δ_t is the fixed effect of the calendar year t; $\mathbb{I}$ is an indicator function assigned 1 if the state operated at least one One-Stop Center, and zero otherwise; y_{it} is the labor outcome of interest, such as the natural log of the native workers' average weekly wage and employment rate for each skill cell and ϵ_{ijt} is the error term clustered by state and skill cell.[6]

The parameter of interest is θ. If $\theta > 0$, then One-Stop Centers positively affect the wages and employment of native workers, indicating that One-Stop Centers encourage native rather than immigrant workers to participate in ALMPs. Conversely, if $\theta < 0$, then One-Stop Centers negatively affect wages and employment through the immigrant influx, indicating that One-Stop Centers encourage immigrant workers to participate in ALMPs.

[6] Dollar values were converted to the 1999 level using the Consumer Price Index adjustment factors provided by the IPUMS.

4. Results

Table 3 presents the estimation results for the impact of One-Stop centers on wages and employment rates (Hypotheses 1 and 2). β_4 was significantly negative (-0.0002, $p < 0.01$). As the F statistics of the first-stage estimation were sufficiently large (24.77), the instrument variable was unlikely to cause a weak instrument problem.

Table 3. First-stage DiD estimation results.

	Dependent Variable
	Immigrant Rate
DISTANCE	0.0001***
	(0.00002)
STATE_GROUP	0.357***
	(0.046)
DISTANCE2	−0.00000***
	(0.000)
DISTANCE:STATE_GROUP	−0.0002***
	(0.00003)
STATE_GROUP:DISTANCE2	0.00000***
	(0.000)
Constant	−0.101***
	(0.031)
Observations	3,956
R^2	0.021
Adjusted R^2	0.020
Residual Std. Error	0.147 (df = 3950)
F Statistic	16.930*** (df = 5; 3950)

Note: *p<0.1; **p<0.05; ***p<0.01

T-static are indicated in parentheses below the point estimate. Observation is state-cell-years. Regression is included the state-cell and year fixed effect.

Table 4 shows the results of the 2SLS analysis. The establishment of One-Stop Centers directly impacted the wages and employment rates of native workers, supporting Hypothesis 1. The impact of One-Stop Centers was through the immigrant influx, supporting Hypothesis 2.

Table 4. DiD estimation results.

	Dependent Variable			
	LOGWEEKLY_INCOME		LOGEMP	
	(1)	(2)	(3)	(4)
p	0.010		−0.028	
	(0.091)		(0.025)	
$\hat{p}$		7.346***		0.574*

		(1.671)		(0.301)
STATE_GROUP	−0.013	1.804***	−0.001	0.112
	(0.011)	(0.416)	(0.007)	(0.072)
p ×STATE_GROUP	−0.014		−0.019	
	(0.085)		(0.049)	
p̂ ×STATE_GROUP		−17.335***		−1.087
		(3.944)		(0.673)
Observations	3,944	3,944	3,952	3,952
R^2	0.0004	0.003	0.001	0.001
Adjusted R^2	−0.338	−0.334	−0.336	−0.336
F Statistic	0.363	2.949**	1.131	0.867

Note: *p<0.1; **p<0.05; ***p<0.01

T-static are indicated in parentheses below the point estimate. Observations are in state-cell-years. Regression is included in the state-cell and year fixed effect. Column 1 and 3 show the OLS estimation results. Column 2 and 4 show the 2SLS estimation result. Standard errors are adjusted for clustering at the state-skill level.

Columns 1 and 2 of Table 4 show the impact on the natural log of natives' average wages. Column 1 shows the estimation results of the fixed-effect model, and Column 2 shows the estimated results of the fixed-effect model using the 2SLS method. Row 3 indicates that the point estimator of the direct effect of One-Stop Centers was 1.804 ($p < 0.01$). Establishing One-Stop Centers decreased the wages of native workers through the immigrant influx. θ was 17.335 at ($p < 0.01$), with a smaller point estimator than that of the direct effect, indicating an upward bias in the direct effect estimation. This upward bias was induced by higher wages, which attracted immigrants.

The establishment of One-Stop Centers encouraged native workers to participate in ALMPs, increasing their productivity and wages. However, a negative effect on the wages of native workers was observed, as the labor supply shock of the immigrant influx, which was encouraged by ALMPs, outweighed the positive effect on native worker wages.

Columns 3 and 4 in Table 4 show the estimated results for the natural log of the natives' employment rate. Column 3 represents the results of the fixed-effects model, and Column 4 represents the 2SLS estimation. These columns show that the point estimators of direct and indirect impacts did not differ from zero, indicating that the effect of One-Stop Centers on the employment rate of native workers was insignificant.

Next, I computed the wage elasticity of immigrant workers (−9.86) using the 2SLS estimator based on Borjas (2003) and Edo and Rapoport (2019).[7] This value was interpreted to mean that a 10% increase in the number of immigrants caused a 98.6% reduction in native workers' wages.

Following this, the impact of One-Stop Centers on wages and employment rates of immigrant workers was estimated to test Hypothesis 3 (Table 5). One-Stop Centers raised wages of immigrants; however, the coefficient is insignificant. This indicates that One-

[7] I compute the elasticity as follows: $\left(1 - p_{ijt}\right)^2 \times \beta$, where β is the total impact of the immigrant influx on native wages. The total impact in the treatment group was obtained as follows: $\beta = \hat{p} + \hat{p} \times \mathbb{I} = 7.346 + (-17.335) = -9.989$. Then, using the average immigrant rate for each skill cell $\bar{p} = 0.1136$, I obtained the wage elasticity as follows: $(1 - \bar{p})^2 \times \beta = 0.987 \times (-9.989) \simeq$

Stop Centers provided opportunities to participate in ALMPs and enter the US labor market for potential immigrant workers. Likewise, the effect on the employment rate of immigrant workers is positive but insignificant.

Table 5. Results of the DiD estimation for immigrant workers.

	Dependent Variable	
	LOGWEEKLY_INCOME	LOGEMP
	(1)	(2)
STATE_GROUP	−0.023	−0.012*
	(0.037)	(0.006)
Observations	3,944	3,944
R^2	0.0002	0.001
Adjusted R^2	−0.382	−0.382
F Statistic (df = 1; 2852)	0.520	2.042

Note: *p<0.1; **p<0.05; ***p<0.01

T-static are indicated in parentheses below the point estimate. Observations are in state-cell-years. Regression is included in the state-cell and year fixed effect. Standard errors are adjusted for clustering at the state-skill level.

Low-skilled native workers may be more affected by ALMPs than high-skilled native workers. Poulos and Nightingale (1997) and the US Department of Labor (1993) reported that ALMPs tend to offer job training in the US and their impact may be heterogeneous.

I estimated the heterogeneity of natives' skill levels, including only those with high school education or below, and Table 6 presents the results. The coefficients of weekly wages of low-skilled native workers were significantly positive ($p < 0.01\%$). Establishing One-Stop Centers positively affected the employment rates of low-skilled native workers, indicating that One-Stop Centers improved their skills and competitiveness in the labor market against immigrant workers.

The job training budget may affect its quality. If the establishment of One-Stop Centers affects expenditures for job training programs, the results may have some biases. Therefore, the validity of the estimations was checked against this budget effect. The National Association of State Budget Officers (1998, 2000) reports the state-year-level budget. The expenditure for higher education in each state was plotted to examine the job training budget trends. Budget trends exhibited no difference before and after the establishment of One-Stop Centers (Figure 4), indicating that One-Stop Centers did not affect job training expenditure.

Table 6. Results of the DiD estimation for low-skilled native workers.

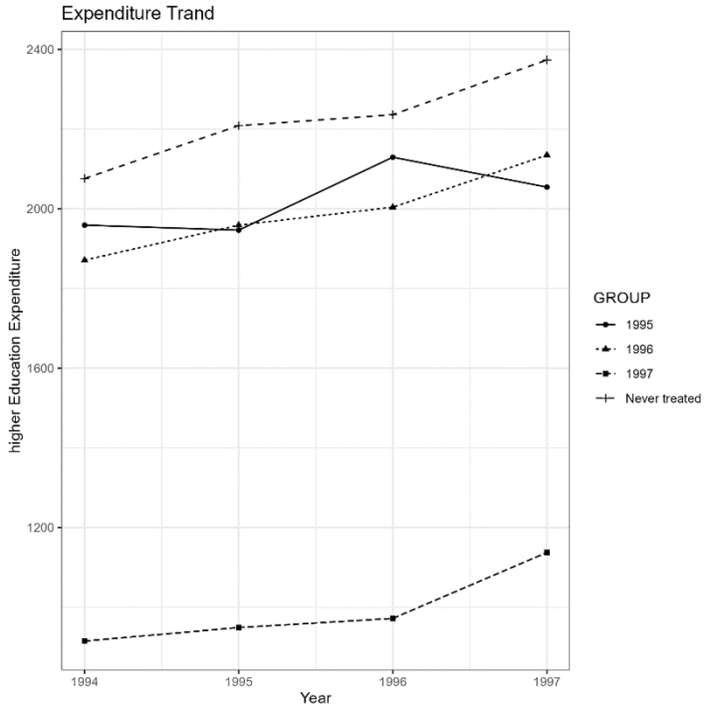
	Dependent Variable			
	LOGWEEKLY_INCOME		LOGEMP	
	(1)	(2)	(3)	(4)
p	0.046		−0.040	
	(0.076)		(0.030)	
$\hat{p}$		−7.592***		−0.553**
		(2.097)		(0.246)
STATE_GROUP	−0.026	−2.392***	−0.003	−0.206***

	(0.016)	(0.639)	(0.012)	(0.077)
p ×STATE_GROUP	0.036		−0.014	
	(0.117)		(0.060)	
$\hat{p}$ ×STATE_GROUP		16.978***		1.454***
		(4.602)		(0.538)
Observations	1,961	1,961	1,968	1,968
R^2	0.001	0.004	0.001	0.001
Adjusted R^2	−0.342	−0.339	−0.340	−0.341
F Statistic	0.541	1.757	0.694	0.432

Note: *p<0.1; **p<0.05; ***p<0.01

T-static are indicated in parentheses below the point estimate. Observations are in state-cell-years. Regression is included in the state-cell and year fixed effect. Column 1 and 3 show the OLS estimation results. Column 2 and 4 show the 2SLS estimation result. Standard errors are adjusted for clustering at the state-skill level.

Figure 1. Expenditure trend for higher education.



Data Source: 1997 State expenditure report published by the National Association of State Budget Officers and 1996 State expenditure report published by the National Association of State Budget Officers.

5. Conclusion

ALMPs play an important role for immigrant workers entering the labor market. Previous studies have used microdata to estimate the causal impact on participants, indicating that ALMPs may improve the skills of immigrant workers, increase their substitutability, and reduce the wages and employment rates of native workers due to the immigrant influx into the labor market. I estimated whether the establishment of One-Stop Centers

encouraged immigrant workers to enter the labor market and effected the wages and employment rates of native workers.

The empirical results revealed that establishing One-Stop Centers reduced the wages and employment rates of native workers, suggesting that establishing One-Stop Centers encouraged immigrant workers to attend ALMPs and enter the US labor market. Furthermore, establishing One-Stop Centers improved the wages and employment rates of low-skilled native workers, indicating that they increased skills and reduced substitutability between low-skilled native and immigrant workers. Contrarily, One-Stop Centers had an insignificant effect on the wages and employment rates of immigrant workers, which may be because unemployed immigrants could not participate in ALMPs.

This study revealed an elasticity of wages and employment rates of immigrant workers that was greater than Borjas (2003) and Edo and Rappoport (2019) reported. This implies that ALMP encourages the skill improvement of immigrant workers and the substitutability between native and immigrant workers. Thus, the indirect impact should be carefully considered when evaluating the impact of ALMPs.

This study has two limitations. First, work authorization in the US is required for participation in the ALMPs. Warren and Warren (2013) revealed that the US had 8.6 million unauthorized immigrant workers, compared to 6.8 million authorized immigrant workers in 2000. This suggests that unauthorized immigrant workers have a significant impact on the US labor market. Warren and Warren (2013) used data from the American Community Survey provided by IPUMS to estimate the number of unauthorized immigrants. This suggests that the data used in this study also includes unauthorized immigrants. However, this study did not distinguish between the two owing to data limitations. Second, this study only analyzed the short-term impact. Skill improvements among native and immigrant workers may change the output function components. Job training may affect the decision of workers in other countries to migrate to the US, and skill upgrading may affect firms' labor demands. Further studies are required to explore these long-term effects.

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