EDUCATIONAL DECENTRALIZATION AND ECONOMIC RENTS.

Manuel Ontiveros
Universidad Autónoma Metropolitana
Unidad Azcapotzalco
México
Email: montiveros@presidencia.gob.mx

Liliana Meza
Universidad Iberoamericana
México
Email: liliana.meza@uia.mx

Abstract

The article analyzes the public teachers labor market before and after the decentralization reform in basic education of 1992. It shows a simultaneous increase in both the relative price and the relative quantity of public teachers, while it finds no evidence of an increase in relative demand. We argue that these changes can be explained by the interest of authorities in improving education quality throughout a reduction in the student-teacher ratio, and that this reflects an economic rent appropriation process in public schools. An analysis of education premiums suggests that not only teachers, but also public workers are extracting economic rents, but the bureaucrats seem to earn them on a merit basis, while the public teachers seem to obtain them from a political process.

ACRONIMS USED IN THIS RESEARCH.

ANMEB: National Agreement for the Modernization of Basic Education

COPARMEX: Mexican Employers' Confederation

CROM: Regional Confederation of Mexican Workers

CTM: Mexican Workers Confederation

IMSS: Mexican Institute of Social Security

ISSSTE: State Workers Institute of Social Security

INEGI: National Institute of Statistics Geography and Informatics

PEMEX: Mexican Petroleum

PRI: Institutional Revolutionary Party

SENTE: The National Union of Public Education Worker's

SEP: Secretary of Public Education

EDUCATIONAL REFORM AND ECONOMIC RENTS.

Manuel Ontiveros and Liliana Meza

Introduction.

It is a common believe, and some times documented in the education literature, that school teachers in Mexico are underpaid with respect to other professional occupations in the labor market. Although real salaries have indeed fallen for almost every kind of worker in this country[1], public teachers seem to have suffered less than their similar counterparts, when the comparison is made on an hourly wage basis. How teachers are paid with respect to other occupations is a relevant topic, because quality of education depends, importantly, on the economic incentives teachers face. If the salaries teachers receive are not competitive, it will probably cause a perverse incentive and generate a self-selection process, where students will suffer the consequences. If, on the other hand, salaries teachers receive are competitive and even surpass wage rates of similar workers in other economic sectors, economic policies aimed to increase education quality in the country will have to concentrate on different features of the education system.

In this paper we find that the hourly wages of public school teachers are higher than the hourly wages of private school teachers, and other public and private employees, even after controlling for education, experience, sex, marital status and region. As we present evidence of an increasing number of students in a rate lower than the increasing number of teachers, and given that there is no evidence of an increasing quality of public education, we explain this finding by the economic rents the school teachers in the public education system are able to obtain.

The corporatism that supported the political organization in Mexico during the XX century --and that is beginning to change--, created several interest groups

---

[1] See Meza, Liliana (2001).

capable of extracting economic rents in the form of direct fiscal transfers. The National Union of Public Education Worker's (SENTE) has been in a particularly suitable position to obtain these rents, and this position may have even improved after the decentralization effort the government made in 1992. According to Oates (1972), central governments produce a common level of public goods for all localities, while local governments can tailor public goods to local tastes. This means that decentralization policies bring decision closer to the people. However, as Galiani and Schargrodsky (2002) put it, decentralization can worsen the provision of public goods if interests of a local elite surpass administrative and technical capabilities of the local governments. This means that decentralization theory identifies trade-offs, and does not establish absolute dominance of either decentralization or centralization in the provision of public services. Bardhan and Mookherjee (1998) consider the trade-off to lie between central government ability to monitor the bureaucrats and capture by the local elite under decentralization. Then, If interest groups that are locally strong but nationally weak can easily capture political process at the local level, then decentralization will tend to favor those local groups disproportionately[2]. Therefore, an increase in the public teachers local union power might be behind the increasing hourly wage differentials between public teachers and other occupations observed in the labor market, given that they are not explained by an increasing demand, or by a decreasing supply, or by a policy change in the education sector.

The purposeof this work is to try to test the idea of fiscal transfers to the educational system, and specifically to teachers, in the form of economic rents. To reach this goal, in section one we outline the institutional setting of the educational system in Mexico. In section two we present the analytical framework we use, based on a Mincer Equation approach, to test for wage differentials between public teachers and other workers in the Mexican economy. We measure these wage differentials in two different periods: before and after the decentralization process of the public system of basic education made in 1992. In section three we discuss

---

[2] See Galiani and Schargrodsky (2002)

the data used in this article. Section four presents the results. We find that after controlling for the usual factors, teachers in the public education system earn higher wage rates than teachers in private schools, other public workers and workers in the rest of the economy. This result is robust to estimations before and after the decentralization process. At the same time, we find that the number of public teachers has grown at a higher rate than the number of students in the public education system. In the absence of a policy change aimed to decrease the average size of class, this suggests an excess of public teachers, and some form of market intervention that benefits public teachers. Section five present our concluding remarks.

I. INSTITUTIONAL SETTING.

The political organization of modern Mexico was built on the 30's, according to a corporatism structure of the political, economic and social agents. Entrepreneurs, workers, pesants and other political social groups were organized by the government by giving them some political power in order to be used as a support for the establishment. In this way, large confederations of workers unions arise, like CTM, CROM, and others, and they where used as a counterpart against the industrialist interest, that were also organized in big entrepreneur organizations, like COPARMEX and others. (Jones and De Rems, 1995). This organization resulted in an equilibrium easily used by the government according to the needs of the particular circumstances. State workers followed the same model. Health, education and other public workers were organized and controlled by official unions[3]. The teachers' national union, the SENTE, was born in the mid twenieth century under these circumstances.

At this time, all private, public and agricultural workers organizations were part of the ruling party, the PRI. This situation remained for most of the century.

---

[3] Until April of 2001, the labor legislation explicitly prevented more than one workers union in the same enterprise –employer-

Independent organizations were marginal and some times illegal. Official unions of public workers didn't have a capitalist counterpart, so the government gave them direct privileges to keep them under control. These organizations gained power as they increased their membership with the government growth. As they grew, these official organizations were in competition to obtain larger fiscal benefits or direct transfers, pretty much as described by Becker (Becker, 1983). At some point, the combination of a huge fiscal deficit and adverse economic international conditions, generated economic crisis that allowed the government to modify the institutional setting, as Tornell and Esquivel argue, by introducing the first generation reforms in the Mexican economy (Tornell and Esquivel, 1999).

In 1983, President Miguel de la Madrid took office in the middle of the deepest economic crisis of the recent history in Mexico. One of his economic strategies to recover the economic growth was an aggressive policy of unilateral trade liberalization. After this dramatic change in the economic policy, following administrations continue and deepened the trade liberalization and started market-oriented reforms in the rest of the economy. Privatization and decentralization of government enterprises spread out across the Mexican economy. According to Tornell and Esquivel, (Tornell and Esquivel, 1999) the market oriented reforms generated a new elite that allowed the government to keep control over the old elites.

Although this process has not concluded yet, the outcomes of these reforms show mixed results, going from great success, like in the telephone company, to complete failure like in the banking system and highways construction. The reasons of these failures, according to Tornell (Tornell, 1999), could be the lack of previous reforms, that provide an institutional framework to prevent the new private owners to continue extracting fiscal transfers, as the bureaucrats did. These institutional changes are now known as the "second generations reforms".

After starting the market oriented reforms, the Mexican government also started a decentralization process, translating to the local governments the responsibility for the provision of several publicly provided goods. An important reason for these reforms was to reduce or eliminate the power of public workers unions. The principal element in these decentralization reforms was to shift the funding of federal offices to the direct administration of local governments. In this way the federal transfers to local governments was increased and formalized in the annual federal budget.

The groups affected by both, market oriented reforms and government decentralization where mainly bureaucrats, worker unions of the former public enterprises and public offices decentralized, and finally every other interest group that was in a position of receiving subsidies, political power or tax benefits. The strategy followed by the affected groups seem to have taken two basic forms. First, as a strong political opposition, and second as an ally, giving support to the reforms by negotiating the preservation of some privileges. The second strategy proved to be more effective for the interest groups, and perverse for the success of the reforms. This way, the strong PEMEX union that heavily financed the political campaign of Cuahutemoc Cardenas, a PRI defector opposing the reforms, was directly attacked by the new administration of Carlos Salinas in 1989, who defeated Cardenas in a controversial election in 1988. The union leader was apprehended by the army, and the union was controlled by the new president.

The rest of the official union leaders learned the lesson and avoided a direct confrontation with the president. The teachers union (SENTE), the largest in the country, was also under attack in 1989. But the union replaced the historical leader, and by giving support to the new president, was able to avoid direct confrontation. SENTE could therefore survive the first confrontation with the federal governmment.

The largest decentralization reform in the public education system took place in 1992. This reform may be considered as the federal government's second attempt to take control of the national teachers union.

The public education office in Mexico was created in 1921 under direct control of the federal government. The "Secretaría de Educación Pública" (SEP), from 1921 to 1991 was in charge of every aspect of the Mexican education activities, from curricula design to finance and management of the system. Only a few states developed their own basic education infrastructure. As part of the corporatism precess described above, the teachers union (SNTE) was created in 1943. Since then, the SENTE seem to have gained enough power to capture most of the fiscal transfers to the educational system[4].

This situation changed in 1992. This year, the most important reorganization of the of public education system took place. The new structure was presented in the "National Agreement for the Modernization of Basic Education (ANMEB)[5]. This document admits low coverage, low quality of services and extreme concentration and bureaucratization inside the SEP. To solve these problems and to reduce the SENTE power, the agreement transfered the responsibility of the entire infrastructure of schools and teachers and the management of all resources to the state's government. At the same time, the Federal Government compromised to keep financing the system.

Although the agreement presented a diagnostic of the federal system problems, there was not an analysis of this kind for the local education systems. In fact, most of the state systems had lower management capabilities. In some cases, they had not an educational system at all. In return for the federal financing, there was only an agreement, not a formal compromise, for the State Governments to increase their expenditure on basic education. Besides, the agreement did not

---

[4] Ontiveros (2001) shows that federal financing of basic public education does not follow efficiency or equity objectives, even though those objectives are explicitly stated in the educational legislation.
[5] Acuerdo Nacional para la Modernización de la Educación Básica. SEP (1992).

include a mechanism of accountability for the state management of federal resources, and finally, the SENTE was not divided. As a result of this decentralization process, the state sections of the workers union find themselves in the same or better negotiating position with respect to the State Governments, than the position held by the national union with respect to the Federal Government. In other words, this reform transfered the dispute between those who seek to extract fiscal transfers and those who seek to prevent them, to the local level but, in doing this, the Federal Government gave some advantage to the rent seeking groups. Besides, as argued by Tullock (Tullock, 1971), the dispute itself wasted resources, reducing even further the social welfare.

The federal allocation of education funds is made on a yearly basis through the government budget. This process allows for the lobbying of interest groups and promotes the state competition for funds during the setting process of the annual federal budget and during the actual allocation of funds made by the SEP. The effect of these fiscal transfers should be appreciated in several ways. As a wage retribution above the labor clearing prices in the labor market; as an excessive number of workers in public education system; as poor marginal productivity of resources devoted to the education system; or as a combination of them. In this work we focus on the distortions in the labor market.

II. Data set.

The results in this article are based on the Urban Employment Survey (Encuesta Nacional de Empleo Urbano) collected by the Instituto Nacional de Estadística, Geografia e Informática (INEGI). Between 1987 and 1991 the survey was compiled in sixteen cities. In 1992 and 1993 the sample increased to include 16 more, and since 1996 the survey covers 43 cities. We use all the cities included in years 1991 and 1999.

The data contain demographic characteristics, employment and earnings information of randomly selected households in urban areas. The survey was

conducted on a quarterly basis for 1987-1998. Similar to the Current Population Survey collected in the US, the information refers to the week preceding the survey. People are asked about their education, job, occupation and industry.

The Urban Employment Survey classify workers in 18 ocupation brackets in 1991. These brackets are disaggregated in 1999. To identify pubic and private teachers, we use the occupation bracket named "Educational workers". To classify a teacher as public or private, we use the variable that express the kind of social security services she receives. For example, a public teacher is a person classified as "Educational worker" who receive her social security services from ISSSTE, while a private teacher is a person classified as "Educational worker" who receive her social security services from IMSS.

Throughout the paper, we use 5 education brackets: the people with no primary school are included in the "No Education" bracket. Persons with some or complete primary school are included in the "Primary School" bracket. People with some or complete secondary school are classified as "Secondary School." The people classified as "High-School" have between 10 and 12 years of education, and the people included in the "College" bracket have 13 or more years of schooling.

The wage sample we use includes men and women, aged 16-65, who worked more than 10 hours the week before the survey. Workers in the wage sample are aggregated in 5, 10 years of age brackets. We also classify workers in 7 different regions: Northern Border, North, Center, Mexico City, Pacific Coast, Gulf Coast and South[6]. Those who studied more than 30 hours the week before the survey, the self-employed, and those who worked without pay were deleted from the wage sample. The information about wages comes from a monthly earnings variable included in the data. We report results based on hourly wages. To

---

[6] Cities included in each region are: **Northern Border**: Matamoros, Ciudad Juárez, Tijuana , Nuevo Laredo; **North**: Chihuahua, Monterrey and Torreón; **Center**: León; **Pacific Coast:** Guadalajara; **Gulf Coast**: Orizaba and Veracruz; **South**: Mérida.

calculate real hourly wages, we divided the monthly earnings by 4.3 times the hours worked per week. The data includes weights to make the sample a representation of the total urban population of the country. These weights are used throughout the paper.

III. Analytical framework.

In a competitive market it should be observed that $\left[\dfrac{P_i}{h_i}\right]_i = \left[\dfrac{P_j}{h_j}\right]_j$, where P is the income payment and h is the total number of hours worked in the same period for worker i in industry j. Lets name hourly wage rate in industry j as, $w_j = \left[\dfrac{P_i}{h_i}\right]_j$.

If we observe that $w_j > w_i$, after controlling by the usual factors, and if industry j is the public teachers sector, then the strongest candidate to be responsible for the distortion is some kind of government intervention[7].

The straightforward methodology to test the above proposition is to estimate a Mincer equation, also called the "human capital earnings function". According to this methodology, wage rates are determined by a vector of personal, market and environmental variables thought to influence the wage. Among these variables we find personal characteristics like schooling , experience, marital status, gender, occupation and training. Therefore, we express the standard earnings function as:

W=f(Si,Xi,Yi),

where Si is the scholling level of the worker; Xi is a vector of socio-demographic characteristics, and Yi is a dummy that expresses the occupation of the worker. The occupations we are interested in are: public teacher, private teacher, public non educational worker, and private non educational worker. The workers included in our wage sample fall in only one of these occupation classes. Workers that fell in more than one occupation bracket were deleted from the wage sample. Therefore, we use in our estimation 4 occupation dummies, 5 education dummies, a dummy for married people, and dummies for all the other characteristics included as

---

[7] The efficiency wage theory attribute wage differentials to specific characterisitics of industries. We ignore this because we concentrate on teachers.

independent variables in our Mincer equations. In all our estimations, the ommitted occupation bracket is private non educational workers.

IV. Results.

Table 1 shows the estimation of a Mincer equation for years 1991 and 1999, with the purpose of comparing teachers wage differentials before and after the decentralization reform of 1992. The year 1999 was chosen to give several years of institutional adjustments after the reform. At the same time, two estimations for this year are presented. Column B uses all education workers, while column C uses only basic education teachers, because the education reform was directed to this level of education. The differences in the results between columns B and C are marginal, so it is possible to use aggregate data to compare wage differentials between these two years, and to analyze the differences in education premiums between education and non education workers, as discussed below.

All columns in table 1 show the usual results of a Mincer equation, estimated by OLS and where the dependent variable is the log of hourly wages. The variables of personal characteristics are significant and show the expected signs. To have a better understanding of the coefficients of the regression equation, and to interpret them as percentage wage differentials, we apply the following transformation:
$\Delta\% = [(\exp^{\beta}) - 1] * 100$, where β is the estimated coefficient.

Our results show that, in 1991, the hourly wage rate of public teachers was 15.3% higher than the hourly wage rate of non education workers in the private sector. Using the same procedure, we find that teachers in the private sector and public non education workers earned, respectively, 16.9% and 12.1% less per hour than the non education workers in the private sector in the same year.

Table 1. OLS Estimation of wage differentials. 1991 and 1999

	1991 Aggregated A		1999 Aggregated. B		1999 Basic education C	
Variable	Parameter Estimate	t Value	Parameter Estimate	t Value	Parameter Estimate	t Value
Intercept	-0.48706	-10.6	2.76633	242.01	2.76695	241.84
Age	0.08812	34.27	0.03587	55.35	0.03575	55.11
age2	-0.00077263	-23.28	-0.000346	-41.24	-0.00034374	-40.93
Sex	0.29984	27.73	0.16321	63.75	0.16261	63.41
marital	0.12762	11.02	0.11665	41.91	0.11718	42.05
Educ 0	-0.41822	-15.4	-0.03071	-4.34	-0.03108	-4.39
Educ 2	0.36059	27.36	0.03651	11.16	0.03686	11.26
Educ 3	0.82562	60.08	0.05119	15	0.05152	15.09
Educ 4	1.55456	107.96	0.27761	78.43	0.28448	80.9
Public teacher	0.14205	2.74	0.23551	26.14	0.24019	23.86
Private teacher	-0.18561	-6.24	0.06304	6.97	0.02744	2.42
Burocrat	-0.18286	-18.6	-0.2114	-40.81	-0.18804	-37.27
Reg2	0.55504	34.72	-0.12599	-18.9	-0.12729	-19.04
Reg3	-0.78631	-29.03	-0.26781	-38.84	-0.26784	-38.8
Reg4	0.07437	4.6	-0.21788	-44.77	-0.21759	-44.68
Reg5	-0.85921	-26.11	0.07872	17.47	0.07813	17.32
Reg6	-0.00625	-0.24	-0.29000	-33.74	-0.28814	-33.5
Reg7	-0.25851	-17.18	-0.13281	-18.85	-0.13297	-18.86
R^2=0.099, n=211463, F=0.0001			R^2=0.071, n=547581 F=0.0001		R^2=0.070, n=547180, F=0.0001	

From our results we can conclude that, in 1991, public teachers in Mexican urban areas earned higher hourly wages relative to private teachers and other workers of the public and private sectors. These differences suggest a rent appropiation by public teachers, although they could be explained by a non-equilibrium situation of an increasing demand or a decreasing supply of teachers, or by a specific policy aimed, for example, to increase education quality. This point is further discussed below.

Since 1991, two main events had occur in Mexico with direct consequences over the teachers labor market. First, the basic education reform of 1992 already discussed, and the economic crisis of 1995. To try to capture the effects of these two events on the wage differentials described above (but not necessarily to distinguish among them), we re-estimated the Mincer equation for 1999, as described at the beginning of this section. Several findings are worth noticing.

First, the table shows that personal determinants of wage --age, gender, marital status, and education--, lost predictive power between 1991 and 1999 (the R^2 dropped from 0.099 in 1991 to 0.07 in 1999). This effect could be a consequence of the economic crisis of 1995, that increased the importance of non competitive sectors as sources of employment in the economy.

Second, the wage differentials between public teachers and other occupations increased. According to column B, the wage rate differential between public teachers and private workers increased to 26.5% (and to 27.1% in column C) in 1999. At the same time, the wage differential between public and private workers deteriorated from −12.1% in 1991, to −19.1% in 1999 (and to -17.1% in column C). Table 1 also shows an apparently contradictory wage policy for public workers, because the wage differential between education and non education public workers increased from 27.4% in 1991, to 45.6% in 1999. Since wages of public workers are determined more by political or "equity" considerations than by productivity (although it is difficult to measure the marginal product of a bureaucrat), the idea of economic rents is a plausible explanation for this wage differential. In any case, the evidence presented suggests that teachers were in a better situation than the rest of public workers to maintain their wage rates.

Another important question is why did the public teachers relative position improve after the economic crisis?. The consequences of the decentralization reform of 1992 may explain this result. As discussed before, after the decentralization reform, the local sections of the SENTE were, in most of the cases, the largest and most powerful union at local (state) level. The reform seem to have increased their negotiation position relative to the position held by the national teachers union with respect to the Federal Government.

Our results also show an increase in the relative wage rate of private teachers with respect to private and public non education workers. Relative wages of private teachers increased from −16.9% in 1991 to 6.5% in 1999 (and to 2.8% in column C) with respect to private non education workers.

This last result apparently questions the hypothesis of rents appropriation and may be explained by two different ideas.

a) One indicates that all education industry shows an increase in its marginal product, so both public and private teachers get an increase in their relative wages. This effect could be explained by an increase in the use of capital in the industry. This is quite possible since technological development should directly reflect in the education industry, say by the use of computers and new developed communications technology. If that was the case, the rents theory would be weakened.

b) The other possible explanation is that the private school teachers are able to, somehow, share the rents captured by the public teachers. This rent sharing is possible only if there is some degree of mobility inside the education industry between public and private jobs. That is in fact the case. Although private teachers cannot freely migrate to the public sector, the movement in the opposite direction is completely free. There are no entry barriers for public teachers to work in the private sector. It would be optimum for teachers in the

public sector to complement their total income if the wage rate in the private sector is high enough to cover their time opportunity cost. Since, as discussed below, the public sector in the education industry is bigger than the private sector, it is quite possible that the average salary for the all industry is set by the public sector. In this case, the private sector will enjoy some of the rents captured by the public teachers.

The discussion between factors a) and b) presented above can be deepened by looking at the changes in education premium of the occupations presented here. According to the Human Capital Theory, the education premium reflects the increase in the productivity of labor as a result of an extra period of education. However, in an institutional setting that gives education premiums ex-ante, the signaling effect might be an important force behind changes in education premiums.

The Mexican education sector, opposite to the rest of the markets, set the education premiums ex-ante (as well as in the rest of the public sector). That is, educational institutions have wage schedules based on education and experience. This mechanism holds for all education levels, from universities to pre-school institutions. Once the nominal wage rate is set according to a given schedule, it cannot be reduced because of an explicit prohibition in the Mexican law.

If, for some reason, there is a generalized reduction in the economy's productivity, like a recession, this phenomenon could be appreciated by a generalized reduction in the aggregated education premium. We observe this situation in table 1 when comparing column A with either columns B or C. But, if education premiums are independent of productivity, like in the education sector, we would expect a lower decrease in the education premium in this sector relative to the decrease in the rest of the economy.

17

In table 2 we compare education premiums for public and private teachers in 1999. We can see that, except for secondary education, the education premium is higher for public teachers. This result basically holds with our expectation.

Table 2. OLS Estimation of education premiums for teachers.

Private school	1999		Public school	1999
Variable	Parameter Estimate	t Value	Parameter Estimate	t Value
Intercep	2.33652	22.12	2.97661	33.77
age	0.04859	9.64	0.0164	4.37
Age2	-0.00043021	-6.65	-0.00009007	-1.99
sexo	0.15345	9.67	-0.01573	-1.73
marital	0.05745	3.43	0.05126	5.26
Educ 0	-0.01942	-0.05	-	-
Educ 2	0.19933	2.83	0.13417	1.98
Educ 3	0.2259	3.69	0.56741	12.16
Educ 4	0.44583	7.39	0.69724	15.05
Reg2	-0.04591	-1.29	-0.17094	-6.79
Reg3	0.01417	0.4	0.12656	5.6
Reg4	-0.14118	-4.57	0.06403	4.58
Reg5	0.14675	5.62	0.1008	3.94
Reg6	-0.24567	-4.56	-0.14967	-6.3
Reg7	-0.12896	-3.34	-0.02434	-0.97
R^2=0.117, n=9188, F=0.0001			R^2=0.066, n=13231, F=0.0001	

Table 3 compares education premiums for public and private non education workers in 1999. We observe that the highest education premium, for all education brackets, correspond to the non education public workers, who have the lowest relative wage rate of all ocupation categories. This result was not expected. A possible explanation for this is the presence of the screen effect in the determination of the wage rates of bureaucrats. As discussed above, the education premium for public workers is set ex-ante by a given wage schedule.

In this case, the education brackets coefficient might mainly reflect a "sheep skin" effect, and not a difference in productivity for public workers.

Table 3. OLS Estimation of education premiums for non education workers

Variable	Private workers	1999		Public workers	1999	
	Parameter Estimate	t Value	Pr	Parameter Estimate	t Value	Pr
Intercept	2.85185	212.47		2.49329	60.25	
Age	0.02508	32.01		0.02582	12.19	
age2	-0.00026945	-25.56		-0.00017429	-6.69	
Sexo	0.14017	49.24		-0.0247	-3.78	
Marital	0.09487	30.75		0.04429	6.21	
Educ 0	-0.12579	-10.74		-0.19971	-4.99	
Educ 2	0.05807	15.81		0.12512	10.59	
Educ 3	0.10265	27.25		0.34222	32.52	
Educ 4	0.46416	118.86		0.77905	76.93	
Reg2	-0.07398	-10.01		-0.01276	-0.57	
Reg3	-0.29025	-37.17		0.04425	1.93	
Reg4	-0.29139	-49.25		-0.13601	-11.51	
Reg5	0.17316	40.46		0.13143	6.03	
Reg6	-0.19724	-21.78		-0.09367	-3.84	
Reg7	-0.0568	-7.86		-0.04745	-2.15	

R^2=0.132, n=235828, F=0.0001 | R^2=0.268, n=29703, F=0.0001

It is also worth noticing that the value of the R^2 is higher for the public sector non educational workers than for the rest of workers, and specially for the public teachers. If the signaling hypothesis was behind wage determination of public sector employees, we would expect a higher R^2 for public workers than for private workers, either teachers or not. The fact that the lower R^2 corresponds to public teachers suggests political forces behind wage determinantion in this sector, and not a signaling or a competitive process. Below we present further evidence to support this hypothesis.

Now, changes in wage differentials can be attributed to changes in relative prices of relevant observable characteristics of workers, like education or

experience, due to exogenous changes like technology or government intervention, or they can be attributed to changes in relative quantities of workers with specific observable characterisitcs. For example, an increasing college education premium can be explained by a decreasing amount of college graduates, by an increasing amount of high school and basic education graduates, or by an increasing use of technology that increases productivity of highly skilled workers. A government intervention, like a subsidy to firms using more highly educated workers, can also increase college education premium.

Based on data from the Ministry of Education, we argue that the amount of teachers in the public sector is excessive, following with the idea of economic rents. Ontiveros (Ontiveros, 1995) and Valencia (Valencia,2000) have presented some evidence indicating that, indeed, there is an excessive number of public teachers in primary education relative to private teachers. Because here we are looking at the complete education system, not just a single sub system --like primary or secondary education--, we present a general discussion to support the idea of economic rents appropriation through an excessive number of teachers and an increasing wage differential favoring the public education system.

To analyze the relative quantity of teachers, we compare the public and private student teacher ratio growth between 1991 and 1999. In table 4 we present the number of teachers in several educational levels, and its rate of growth for the whole period. The largest variation is for post secondary education and universities (others), that were not included in the ANMEB. The increase in the number of pre-school teachers is the largest for basic education because there is an important lack of this service. The number of teachers in primary education grows at the lowest rate because in that level there is an official 100% of coverage.

Table 4. Public and private Teachers by education level. Rate of growth 1991-1999.

Education level	1991-1992	1999-2000	% growth 91-99
Pre-school	110,768	151,793	37
Primary	479,616	543,694	13
Secundary	235,832	299,999	27
Others	306,610	438,921	43
Total	1,132,826	1,434,407	27

Source: www.sep.gob.mx.

From table 4 we can see also that teachers in basic education (pre-school, primary and secondary) were 73% of the total number of teachers in Mexico in 1991, while they were the 69% in 1999. We need to compare the supply side information with the demand side, in order to be able to present some results.

Table 5 presents the number of students by education level and their rate of growth between the two years of reference.

Table 5. Public and private Students by education level. Rate of growth 1991-1999.

Education level	1991-1992	1999-2000	% growth 91-99
Pre-school	2,791,550	3,393,741	22
Primary	14,396,993	14,765,603	3
Secundary	4,160,692	5,208,903	25
Others	46,558,281	52,584,457	13
Total	25,209,046	29,216,210	16

Source: www.sep.gob.mx.

Comparing with table 4 we observe that, in every case, the growth in the number of teachers is higher than the growth in the number of students. According to these tables, teachers in primary education have grown 4.3 times faster than students, while for the secondary case, teachers have grown only 8% faster than students. The rest of the education categories are between these to extremes.

Tables 6 and 7 present the same analysis for type of funding: public and private. The –73% and –80% of growth of federal teachers and students, reflect the institutional transition generated by the decentralization process of 1992.

Table 6. Total public and private teachers. Rate of growth 1991-1999.

	1991-1992	1999-2000	% growth 91-99
Federal	653,324	178,458	-73
State	227,335	878,195	286
Total Public	**880,659**	**1,056,653**	**20**
Private	166,839	258,951	55
Autonomous	85,328	118,803	39
Total Private	**252,167**	**377,754**	**50**
Total	1,132,826	1,434,407	27

Source: www.sep.gob.mx.

Table 7. Total public and private students. Rate of growth 1991-1999.

Sostenimiento y servicio	1991-1992	1999-2000	% growth 91-99
Federal	16,256,010	3,203,567	-80
State	5,414,848	21,222,512	292
Total Public	**21,670,858**	**24,426,079**	**13**
Private	2,506,315	3,456,442	38
Autonomous	1,031,873	1,333,689	29
Total Private	**3,538,188**	**4,790,131**	**35**
Total	25,209,046	29,216,210	16

Source: www.sep.gob.mx.

Comparing data from both tables 6 and 7, we can see that the number of public teachers grew around 20% between 1991 and 1999, while the number of students in the public education system grew around 13%. In the private sector, the number of teachers grew around 50%, while the total number of students increased around 35%. Although this represents a decrease in the student-teacher ratio in both the public and the private sector, the larger decrease in this ratio for the private sector should be interpreted as a profit maximizing decision, while the decrease in the student-teacher ratio in the public education

system can be interpreted either as an increasing quality policy or as an increasing rent appropiation process. In fact, these two interpretations do not exclude each other. Craig and Shieg (1994) find that an increase in the supply of a public good (like education or public transportation) can be driven by a rent appropriation process.

Therefore, the evidence presented here shows a simultaneous increase in both the relative price and the quantity of public teachers, while we find no evidence of an increase in relative demand. Demand for teachers come directly from the number of students, and what we see is that the number of teachers have grown at a higher rate than the number of students. If this is explained by the interest of authorities in improving education quality, throughout a reduction in the student-teacher ratio, other things equal, this might well reflect an economic rent appropriation process in public schools.

Although the effect of ANMEB on education quality is an interesting issue, we do not analyze it, mainly because of lack of data. There are not national test outcomes available for the pre-reform era. The earliest national evaluation for basic education is for 1996. As discussed by Galiani and Schargrodsky (2002), the result of a decentralization reform is an empirical question. They find a positive effect of decentralization on education quality in secondary education in Argentina. As discussed above, if a similar result is found for the Mexican reform, the argument of rent transfers will not be affected.

Concluding remarks.

The institutional setting of public education in Mexico has placed the teachers union in a position well suited for extraction of economic rents. Although there have been at least two attempts to eliminate or reduce the union's political power --that has provoked an intense struggle by opposing groups inside the SENTE--, the political power of the union is still unarguably

important. This position allows the union to extract economic rents, even after the decentralization reform.

We find that both, relative prices and quantities in the labor market of public teachers are above the same variables in the private teachers market. The estimation results show that public teachers earn a wage rate above private school teachers and above private and public non education workers in 1991, a year before the decentralization process. This higher wage not only remains, but increases several years after, in 1999. At the same time, the analysis of education premium suggests that not only teachers, but also public workers are extracting economic rents, but the bureaucrats seem to earn them on a merit basis, while the public teachers seem to obtain them from a political process.

There are several possible economic and policy implications of the results presented here. The position played by the SENTE may harm the education development of the country. International comparison of education quality ranks Mexico below other countries that devote less resources to their educational systems. For the economic development of the country, this situation may cause perverse effects, by reducing the investment in human capital, that has proved to be a paramount factor for economic growth.

For the political internal dynamic, the consequences cannot be disregarded. The political position of SENTE in front of other second generation reforms is not clear, and it can use its power to oppose them. On the other hand, its position in the internal political process have proven to be decisive. This year, for the first time in history, the former ruling party in Mexico, the PRI, decided its national president in an open and democratic election. The SENTE used its physical and geographical infrastructure and its financial resources to support the candidate that finally won the election.

Far from been under attack, the SENTE in now making alliances with new non-PRI governments and, at the same time, it has tightened its relationship with the most conservative wing of the PRI. It is not possible to think in the actual Mexico without the SENTE.

Understanding the political economy of educational decisions in a developing country like Mexico can improve the economic perspectives of the country, and can help designing future policy, avoiding circumstances that have proven to lessen growth possibilities.

References.

Becker, G., "A theory of competition among pressure groups for political influence", Quarterly Journal of E conomics, 28, 1993, 359-382.

Craig, S.G., and E. W., Hsieh, "Local Public Good Provision under Uncertainly: Do Monopoly Bureaus Wield Carrots or Sticks?", Journal of Urban Economics, 36, 1994, 184-208.

Galiani S. and E. Schargrodsky., "Evaluating the Impact of School Decentralization on Education Quality." Economía. Spring 2002.

Hanushek, E. "The Economics of Schooling: Production and Efficiency in Public Schools." Journal of Economics Literature. September, 1986.

Hanushek, et .al. "Aggregation and the Estimated Effects of School Resources." The Review of Economics and Statistics. November, 1996, 611-627.

Jones, Claudio y Alain de Remes. "Sindicalismo, Corporativismo y el Reto Laboral de México" en Luis Rubio y Arturo Fernandez (coords.), México a la hora del Cambio. México: Editorial Cal y Arena, 1995

Ontiveros Jiménez, M. "La eficiencia de los sistemas públicos en la asignación de recursos a la educación primaria. Un análisis cuantitativo del Acuerdo Nacional Para l a Modernización Educativa". El Trimestre Económico FCE LXII (3) 1995.

Ontiveros, Jiménez, M. "Gasto educativo y políticas distributivas de la educación primaria en México." Revista Latinoamericana de Estudios Educativos. Vol.XXX, 2001.

Meza, L.. "Wage Inequality and the Gender Wage Gap in México". Revista Economía Mexicana. Nueva Epoca. Vol. X. No. 2. Segundo semestre de 2001. pp. 291-323.

Tornell, A. "Privatizing the Privatized" NBER, July,1999.

Tornell, A. And Esquivel, G. "The Political Economy of Mexico's Entry to NAFTA". NBER working paper No. 5322. November 1995.

Tullock, G. "The Costs of Transfers". Kylos, 24, 1971.

Valencia Serpel, Karina "El gasto en educación primaria. Un análisis de eficiencia comparativa entre escuelas públicas y privadas." Tesis de licenciatura. ITAM, 2000.