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Competition, Regulation, and the Role of Local Government Policies in Swedish Markets

Stefan Fölster and Sam Peltzman

8.1 Introduction

In a previous analysis of competition in Sweden (Fölster and Peltzman 1997), we concluded that Sweden's high price levels and low productivity growth in the 1970s and 1980s partly could be explained by a history of lax competition policy and a shortfall of new entry into many markets. Since then, a number of markets have been at least partially deregulated. For most goods, there is now intense competition from imports. Imports have increased from 29 to 48 percent of gross domestic product (GDP) over the period from 1990 to 2005. While this largely may be an effect of globalization, changes in competition policy and deregulation have probably contributed. Competition policy has now been strengthened in line with EU policy.

In this chapter, we begin by describing the dramatic changes in competition policy, the deregulations that have been implemented, and the effects that have been found in various studies. To broaden the perspective, we relate the Swedish experience to developments in other European countries, in general, and in the United States, in particular. Our survey suggests that by and large, the Swedish policy changes have been successful. Prices are lower and/or productivity has improved in deregulated industries. Also, the aggregate productivity growth has picked up, and Swedish prices have converged to those in other countries.

In one sector of the Swedish economy, however, competition is still the exception. Local government monopolies control a large share of the

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economy, providing a wide array of social services, schools, health care, and local utilities. This may affect prices and efficiency in these services. In addition, anticompetitive practices by local governments may inhibit the growth of local business and thus have wider consequences for local economic development. The second part of the chapter is an empirical analysis of how local government intervention affects income and employment. The analysis makes use of panel data for 290 local municipalities to examine how political economy variables such as unfair competition, cumbersome bureaucracy, small share of private competition, and high tax rates affect economic performance. The relationships are descriptive rather than causal, but the consistent pattern suggests that much more attention should be paid to local government policies in any analysis of Swedish economic performance.

8.1.1   Productivity Growth Has Picked Up

Many countries have deregulated markets in recent decades. Swedish markets initially were regulated more than most, but around 1990, Sweden embarked on a more ambitious policy of deregulation than many other countries. At the macrolevel, these policies appear to have been successful. Since the deregulation began, Sweden's productivity growth has increased relative to both the European Union and the United States. Of course, how much of this improvement can be ascribed to deregulation is an open question. Several other factors have undoubtedly contributed, among them being better macroeconomic policies and technological improvements, especially in the telecommunications industry, which is relatively important in Sweden.

8.1.2   Prices Not as High as They Were

In 1990, Sweden's overall price level was among the highest in the developed world. This is no longer the case. High-income countries tend to have higher price levels, but Sweden's 1990 price level was roughly 40 percent higher than would have been expected, given Sweden's level of GDP per capita. In 1992, Sweden abandoned its fixed exchange rate regime, and the krona was allowed to float. After a sizable depreciation, Sweden moved to roughly 20 percent above the value motivated by its per capita GDP and has since inched down to about 15 percent above that value.

Accordingly, while the combination of macro- and regulatory policies may have reduced Sweden's high price level, Sweden remains a relatively expensive country. The remaining price gap between Sweden and the Organization for Economic Cooperation and Development (OECD) average is probably due to many causes. The Swedish Competition Authority[1] concluded that about half of the difference between Swedish and OECD price

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1. For example, in Konkurrensverket (2000).

levels can be explained by population size, GDP per capita, tax levels, labor costs, consumption patterns, and exchange rates. They surmised but did not present evidence that part of the unexplained difference might reflect a lack of competition.

8.1.3   Competition Policy Has Been Sharpened

Sweden's competition policy was extensively revised in the 1990s. In earlier decades, this policy had been extremely lax. Until 1993, cartel agreements were legal. Firms were free to enter agreements on price fixing, sharing of markets, and allocation of retail outlets among manufacturers. Only resale price maintenance agreements and joint tendering on public contracts were prohibited. Around 1990, there were over one thousand cartel agreements registered, affecting about 15 percent of total sales of goods and services.[2]

In our previous analysis of the Swedish manufacturing sector over the period from 1976 to 1990, we found that cartels had a substantial negative effect on output, but it was hard to find a corresponding effect on prices once the effect of regulation was accounted for.[3]

In 1993, Sweden's law on competition was brought in line with rules of the European Community. Cartel agreements and other forms of horizontal price fixing and market-sharing agreements became illegal per se. Fines were increased considerably. In 1995, Sweden joined the European Union.

The state of competition did not change immediately. Previous legal arrangements continued as informal arrangements in some cases. A number of cartels of this sort have been uncovered by the competition authority in recent years. Furthermore, it is unclear how effective competition policy has been, or for that matter, can be. An analysis of U.S. antitrust policy reveals that there is little evidence that antitrust policy has actually had much effect on consumer welfare. The reason is that market changes have worked faster against anticompetitive practices than antitrust policy (Crandall and Winston 2003).

8.1.4   Increased Competition in Retail Trade

Entry has become easier in a number of areas, from financial services to retail stores and chimney sweepers. In retail trade apart from food, foreign chains have entered on a large scale and in many cases now hold considerable market shares.

Our previous analysis showed that the food sector was an especially important example of the price-increasing effects of regulation. Prior to 1992, protection against imports was even greater than in the European Union. Entry at the food retail level was also subject to municipal zoning regulation, which was often used to protect the biggest chains. These

2. SPK (1992).
3. It should be noted, however, that output was more accurately measured than prices.

laws remain in place today. However, many municipalities have adopted less restrictive regulation, which has led to a gradually increasing market share for low-price stores and to some entry by new food-store chains and foreign chains. The Swedish Competition Authority found that in the period from 1997 to 2000, municipalities with a restrictive implementation of zoning regulation had less food stores per inhabitant and that a more liberal regulation appeared to lower food prices.[4] Reduced import protection in combination with increased competition in food retailing appears to have had a measurable impact on prices. From 1991, when the reforms began, to 2003, consumer prices for food increased only 5 percent, compared to an increase of more than 30 percent in the overall Consumer Price Index.

8.1.5   Natural Monopolies Have Been Deregulated

Many of the traditional natural monopolies have been deregulated rather more in Sweden than the European average, and in some cases, the United States. Comparisons made by the European Union show that all European countries have opened their aviation and telecommunications markets. Most countries, but not Sweden, still retain a partial monopoly for postal services (letters). About half of the European countries have not yet opened their electricity markets to competition. Taxi regulation prevents entry in many countries, but not in Sweden (Bekken 2003). And railways seem to be more liberalized in Sweden than in most European countries.

Nevertheless, there remain quite a number of unresolved regulatory issues in all these markets. We will give a brief account of how Sweden has tried to tackle these issues and of what the outcome has been. Comparisons with the U.S. experience of deregulation, which often predated Sweden's, provide supplementary evidence and sometimes suggest lessons for both countries.

Electricity

The electricity market was previously vertically integrated. The large producers regulated the market in various clubs under the chairmanship of the dominant state-owned Vattenfall. After deregulation in 1996, the market has been divided into three segments: generating, distributing, and trading firms. Only distribution firms are now regulated monopolies. In addition, the Nordic market has opened up so that the export and import of electricity have become easier. It is quite common now for trading firms to sell imported electricity directly to households. Consumers are billed separately by the distribution firm.

One concern in the wake of deregulation has been that the larger groups have bought up small and medium-sized networking and trading firms.

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4. Lundvall and Odlander (2001).

State-owned Vattenfall remains a dominant actor, which increasingly has invested in other countries as well. A recent investigation by the Regulatory Reform Commission also claims that the supervising Energy Agency needs to be strengthened and given more independence.

Electricity prices are lower in Sweden than in many other European countries. In one study of the effects of deregulation on prices, Green and Damsgaard (2005) show that costs and prices are lower than they would have been without deregulation. The largest gains, due to cost savings, have accrued to the electricity-producing companies and industrial customers. Households, after an initial period of lower prices, have ended up paying higher prices. This may be due to environmental taxes, increasing demand, and integration of the Swedish electricity market with pricier markets in neighboring countries.

The vertical separation of generation from distribution in Sweden parallels developments in other countries such as the United Kingdom. In the United States, the trend toward vertical separation has been slowed considerably in the aftermath of a poorly designed restructuring in California and the scandalous collapse of Enron, which had been a major participant in the California wholesale market. The well-publicized supply shortfalls and price increases in California and the association of regulatory restructuring with a major corporate scandal have made further restructuring politically impossible for the time being. However, a gradual trend toward vertical separation continues. In retrospect, it is clear that California's experiment failed because of poor regulatory design—the uncertainty induced by the long delay between the decision to restructure and implementation of changes, the slavish devotion to spot markets at wholesale, and the frozen retail rates. Nevertheless, the experience has slowed moves toward further market liberalization elsewhere in the United States.

Aviation

Aviation has been deregulated in the same way as in most European countries and in the United States. The market is still dominated by Scandinavian Airlines System (SAS), which is partly state owned. A considerable number of entrants have come into the market, and some have left again. Profit levels are generally low. Most airports are state owned and are not exposed to competition. There are complaints of how they charge fees for their services and allocate slot times. Fees have increased considerably since 1993.

Prices have risen more than the Consumer Price Index since deregulation. But an international comparison seems to indicate that Sweden has about the same price level as many European countries for business tickets but lower prices for private tickets (Luftfartsverket 2004).

In the United States, domestic aviation has been deregulated since 1978. There has been considerable entry and exit since then. Most of the

new entrants have tried to attract passengers with low fares, and this has put pressure on the established carriers. The result has been inconsistent profitability for the carriers but substantially lower prices for most consumers. For example, the industry's average yield (revenues per passenger kilometer) has declined by 55 percent in real terms since 1977. As in Sweden, the airports and airways are government monopolies, and their slot allocation and overall management policies have begun to constrain the industry's further growth.

Railways

Previously, the Swedish State Railways (SJ) had a monopoly. Since 1988, it has been merely a carrier, while the National Rail Administration operates the network. For goods, traffic entry is free, but for passenger traffic, SJ still has a monopoly on profitable traffic. Nonprofitable interregional and local traffic is procured by various authorities, often in a competitive tendering procedure.

In the railway market, prices fell for the transport of goods but increased for passenger traffic, in particular for nonsubsidized traffic. This partly is explained by new high-speed trains that were taken into operation. The subsidized traffic was often put out to tender and has seen smaller price increases. Some of the price increases are explained by the fact that the degree of subsidization has been reduced from 64 percent in 1990 to 42 percent in 2002. One study concludes that the most important competition to railways has come from long-distance bus traffic, which was also liberalized during the 1990s.[5]

The United States deregulated railway freight transportation in 1980. The industry has since consolidated from over one hundred firms into six major firms. Productivity has increased much faster than the economy-wide average, and prices have fallen considerably. For example, the cost per ton kilometer of freight has fallen 50 percent in real terms since 1980.

Postal Services

The state-owned postal service, Posten AB, has been exposed to intense competition in financial services and package delivery. At the heart of the monopoly, however, was letter delivery. Unlike the United States, this has been opened to competition, and up to one hundred firms entered. Only one firm, however, has been able to establish a large-scale operation. London Economics (2003) finds that Sweden has an average price level comparable to other European countries. Most European countries have also deregulated financial services and package delivery but retain a state monopoly in letter delivery. Swedish prices are considerably lower than still-regulated Norwegian prices.

5. Järnvägsgruppen (2003).

Telecommunications

Starting in 1993, the market gradually has been opened to more players than the former monopolist, the partly state-owned TeliaSonera. TeliaSonera also operates most of the fixed nationwide network, but it is required to allow access to other firms at regulated prices. Mobile services are provided by a number of competitors that operate their own network.

In the telecommunications market, an OECD comparison indicates that prices are relatively low in Sweden compared to other European countries.[6]

The United States began restructuring the telecommunications industry in the 1980s, when the traditional land-line long-distance market was opened to competition and deregulated. Prices, especially in long distance, have fallen considerably.

Other Markets

Apart from the network services, there have been a number of other deregulations. One example is taxis. Before deregulation, entry and prices were regulated, as they are in every sizeable U.S. city, except Washington, DC. There were often queues for taxis. After deregulation, the number of taxi companies and drivers increased considerably, but prices also increased. Burdett and Fölster (1994) analyze the effects of taxi deregulation and conclude that the decrease in waiting times of an average of four minutes per trip was well worth the price increase, given taxi customers estimated valuation of waiting time. More recently, Bekken (2003) shows that Stockholm has relatively low taxi prices compared to other European capitals.

8.1.6   Assessing the Overall Effects of Deregulation

A recent government investigation team, the Regulatory Reform Commission (2005), has attempted to evaluate the effects of deregulation in telecommunications, electricity, postal, domestic aviation, taxi, and railway markets. Their conclusion is that the number of firms has increased in all of the deregulated markets. Productivity has increased faster after deregulation in at least four of the six markets.[7] A sign of this also is that employment has decreased in all markets, except for the taxi market.

When it comes to price changes, the commission notes that prices after deregulation have increased relative to the Consumer Price Index in five of the six markets. The only exception is the telecommunications market, where prices have fallen substantially. From this, the commission infers that

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6. OECD (2003).

7. For example, Falkenhall and Kolmodin (2004) show that labor productivity in the state-owned postal firm (Posten AB) increased by 30 percent after deregulation between 1993 and 2000. Veiderpass (2004) shows that total productivity in the electricity supply industry fell by 16.9 percent during the period from 1970 to 1995 but increased after deregulation by 19 percent.

deregulation has not had the effect of lowering prices. This is not a valid inference, however, because the relevant question is whether prices are lower than they would have been in the absence of deregulation. The studies referred to in the previous section suggest that they may be, as Sweden has relatively low prices in deregulated network markets. One explanation for these diverging conclusions is that many of the network markets have been subject to industry-specific cost increases. Electricity and aviation, for example, have been burdened with various environmental taxes. Railroads have had to pay higher electricity prices. Furthermore, prices in network markets have not increased faster than domestic services, in general. This may be a more relevant comparison than the Consumer Price Index, which is affected by falling prices for imported goods. Another aspect, however, is that competition in network markets, even after deregulation, remains far from perfect. Therefore, prices in network markets hardly can be expected to follow the same pattern as in consumer markets, where competition is unfettered. On average, consumer prices have increased 1.2 percent per year over the period from 1994 to 2004. The partially deregulated network industries previously reviewed have seen price increases of 3 percent a year during this period. Finally, completely regulated sectors such as health care and municipal services have seen price hikes of 6 percent a year.

It is possible to examine the relation between the degree of competition and the average annual price increases a bit more closely. In figure 8.1, eighteen industries have been ranked in terms of a competition index that is based on the extent of product market regulation, new entry, and a number of other factors.[8] There seems to be a surprisingly good correlation with average annual price increases. Bergman (2004) plots the unexplained (by differences in labor costs, wage tax wedges, and consumption taxes) price differences between Sweden and the European Union against our competition index and also finds a close correlation.

Even these correlations are quite crude, however, and we view them as merely suggestive.

While there is no similar data for the United States, the overall pattern is reasonably clear. All of the transportation industries that were deregulated in the late 1970s—air, truck, and rail—experienced substantially lower prices. In telecommunications and electricity, which have been partly deregulated, the picture is more mixed. The decline in telecommunications prices has been substantial, but part of this is due to technological advances rather than regulatory changes. The partial restructuring of electricity has had

8. The competition index is based on eleven variables that are graded on a scale from one to five for each branch. The variables are horizontal and vertical integration, import competition, rate of entry, industry concentration, regulation, share of private production, productivity growth, subsidies, existence of a black market, and the profit margin. The variables are weighted equally. The exact calculation is shown in Svenskt Näringsliv (2005).
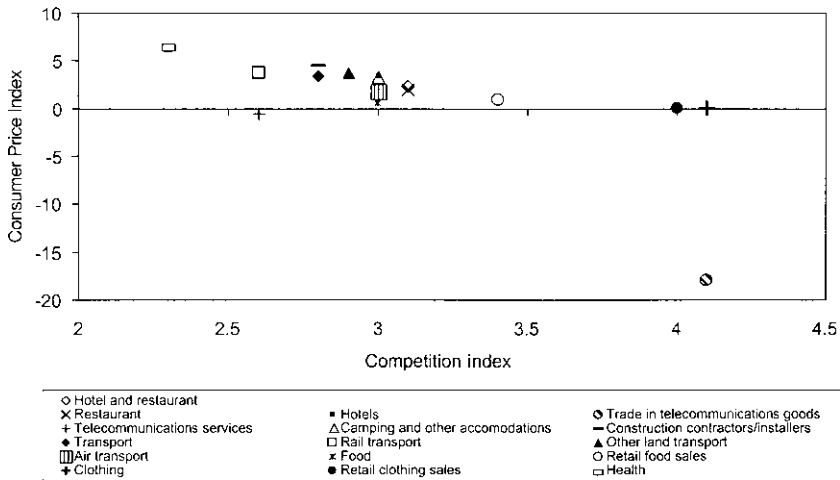
Fig. 8.1   The competition index and the average annual price increase, 1994 to 2004

effects similar to those in Sweden: declining prices for large users and little change for small users.

8.1.7   Pervasive Local Monopolies

The one area where monopolies are pervasive is in services provided by the local government sector. Local governments finance and are the main providers of health care, schools, child care, and care of the elderly. Competition in this sector is quite limited, although private provision has increased since 1990. Now, 9 percent of local public consumption is purchased from private providers, up from about 4 percent in 1990. In child care, 13 percent is produced by private providers; in elderly care, the figure is 12 percent; and in schools, it is 5 percent. School vouchers were introduced in 1991, and nearly 6 percent of all pupils use them to attend nongovernment schools.

The gradual increase in competition for local government services has had some success. For example, costs for local bus services decreased considerably in the early 1990s, as most municipalities began procuring these services in open tendering.[9] In the United States, such public tendering remains the rare exception. Several studies indicate that voucher schools have had a positive effect on academic achievement in surrounding municipal schools.[10] In the United States, there has been much discussion of school vouchers, but only a few scattered experiments have focused on poor households, and no strong conclusions about their effects have emerged thus far. Education through high school remains essentially a public monopoly in the United

9. Alexanderson, Fölster, and Hultén (1998).
10. For example, Bergström and Sandström (2002, 2005).

States, with 90 percent of students attending a public school usually tied to residence. The important competition in this system traditionally has come from the thousands of local school districts financed mainly by taxes tied to local property values, which might be eroded by dissatisfaction with the schools as people move to districts with better schools. However, this interjurisdictional competition has weakened. A greater proportion of school revenues now comes from outside the local school districts (states and the federal government), and recently, all school districts have come under substantially increased federal regulation.

8.1.8   Concluding Remarks

A main theme in our 1997 study was that poor productivity growth and high prices in Sweden were related to the lack of competition in regulated industries. Developments since then are supportive of that theme. Although we cannot quantify the relationship between deregulation and increased competition on one hand and higher productivity growth and lower prices in the overall economy on the other, the evidence from microstudies surveyed here suggests that these policy reforms have had a considerable effect on productivity growth and prices. This largely mirrors the experience with similar deregulations in the United States that most often were implemented a few years ahead of those in Sweden. In both countries, there is scope for further competition and an improved regulatory framework—for example, in aviation and electricity markets.

The fact that Swedish industry has been exposed to more international competition and to much stricter competition law since the early 1990s undoubtedly also has contributed to improved productivity and lower prices. The lack of new entry remains a problem in many sectors, however. In our previous study, an important finding was that the lack of new entry was a greater barrier to competition than was industry concentration. At a macroeconomic level, Sweden still has relatively few people engaged in starting new firms. Regardless of whether one compares the rate of start-ups, the share of self-employed, the number of registered firms, or other measures of entrepreneurship, Sweden appears to have less entrepreneurial activity than the European Union and much less than the United States. (See, for example, Henrekson and Stenlund 2006). Even though it is impossible to know what the optimal rate of entry is, Sweden's exceptionally low rate of entrepreneurial activity suggests that insufficient entry may inhibit competition. It is therefore of interest to examine also how competition policy affects new entry and establishment of new businesses, in general.

In the next section, we take a closer look at the competition problems in the local public sector. Specifically, we analyze the relationship between local government policies and the growth of local business, employment, and incomes.

8.2   Local Government Policies and the Private Sector in Sweden

Local governments play an important role in Sweden's public finances. Their expenditures amount to around 25 percent of GDP, and they also employ about a quarter of all Swedish workers. These are around double the comparable figures for the United States. Because of their large economic role, the tax, expenditure, and regulatory policies of these local governments can have important effects on the private sector, and that connection is the subject of this section.

Sweden's political system consists of twenty-one counties (län), which are the rough equivalent of U.S. states in terms of political geography. Each county is divided into municipalities (kommun), which are similar to a combination of U.S. counties and cities. There are 290 municipalities. Here, we focus on the municipalities, which account for around 80 percent of local government employment and 70 percent of expenditures. Our goal first is to describe some aspects of the municipalities' political economy that we can measure and then to explore the connection between those measures and the larger local economy. The analysis is in two parts. The first uses a panel of municipalities in the 2001 to 2004 period. The second part focuses on growth over the last decade. The short panel has a greater variety of data than the longer cross section, but the latter covers perhaps the more interesting data.

8.2.1   The 2001 to 2004 Panel

This part of our analysis extensively uses the results of an annual survey conducted by the Confederation of Swedish Enterprise (SN) of approximately 37,000 Swedish business owners. The survey includes two questions about the government of the municipality in which the business operates: (a) what is your experience with unfair public competition from your municipality? and (b) what is your experience with bureaucracy and regulation in the municipality? The responses are on a one to six scale, where higher numbers mean a better experience. We have municipality averages of these responses for no fewer than 273 of the 290 municipalities for 2001 to 2004.

The questions principally are about different aspects of a business owner's relations with municipal government. The first question reflects the extensive involvement of the government in local enterprises. Specifically, the 290 municipalities operate a total of 1,400 firms, with combined revenues of about 130 billion SEK per year. Around half the revenues come from housing firms. Municipality-owned utilities are common, and many municipalities also operate hotels, restaurants, retail outlets, repair shops, or other kinds of businesses that are typically privately owned. This government activity raises a concern about constriction of the private sector, either through unfair methods of competition or through more general policies.

In a survey by the Swedish Competition Authority, two of three firm owners claimed to be exposed to competition from government services.[11]

In the SN survey that we use later, firm owners were also asked about the problems they encountered in competing with their municipality. The most commonly mentioned problems are as follows:

- *Sales below costs.* Municipal agencies frequently sell at marginal cost, because fixed costs are already covered by tax revenue. For example, the municipal park administration frequently sells excess plants to the general public at low prices.
- *Subsidies to some actors on the market.* Municipal agencies provide subsidies to municipal sport facilities or provide free labor in unemployment programs to municipal firms.
- *Tendering.* Competition between municipal and private companies is rigged in favor of the municipal firms.
- *Conflict of interest.* An example is that a municipal agency that controls fire-security standards also sells consultancy services on fire security.

At the state and county levels, there are also a large number of government agencies and state- and county-owned firms that affect competition. In one survey of government agencies, one-fourth of all agencies were found to be active producers in private markets (Bergdahl 2000). The government is thus both a competitor and a potential source of contracts for the private sector. In the context of the survey question, a private business person would give low marks to a municipality that favored or subsidized a government-owned competitor or foreclosed a market entirely to private supply.

The second question in the SN survey, which is about bureaucracy and regulation, would apply to all businesses, not just those facing government competition. We will soon see, however, that there is a large common element—call it perceived business friendliness—in the answers to these two questions.

Swedish municipalities have been increasingly privatizing some activities. In the aggregate, the share of municipally financed services that is provided by private contractors has increased from 4 percent to 9 percent since 1990. There are, however, large regional differences. In Stockholm, about 20 percent is purchased from private providers, and private contracting is extensive in the rest of the Stockholm region. However, in about half of all municipalities, the share is close to zero. We use the percentage of a municipality's budget spent on private contracts as another indicator of the local political economy.

Finally, we use two broad measures: one political, the other fiscal. Politically, municipalities are governed by municipal councils. These have anywhere from 31 to 101 members, depending on population, and they are

11. Konkurrensverket (2004).

elected every four years. The last election occurred in 2002, which is conveniently in the middle of the 2001 to 2004 period that we analyze. The allocation of seats among parties is determined by proportional representation. We use a simple right-left summary of this allocation. The right-wing share is based on the seats held by the four main right-of-center parties (Moderates, Center Party, Liberals, and Christian Democrats), while the left-wing share is based on representation of the three main left parties (Greens, Social Democrats, and Left Party). Together, the seven main parties hold 95 percent of the seats, but the minor parties can be important locally.[12]

Our fiscal measure is the local tax rate. Most revenue for county and municipality government is raised by a tax on individual income (after exemptions and deductions). The rates reflect the division of spending between the two levels of government, with the municipality tax around twice the county tax. The combined local tax rate averages around 25 percent of unadjusted income and over 30 percent of taxable income.

Our goal is to see if local public policies plausibly affect the size of the local economy, with particular reference to the private sector. For example, does a municipality's private sector grow if it adopts policies that are friendly to the private sector? Does any private-sector growth enlarge the overall economy, or does it just replace government activity? To answer such questions, we employ a variety of measures of the municipality's macroeconomy. These include the following:

- Employment—total and private sector: these are for workplaces located within the municipality.
- Individual income and individual plus enterprise income: these are the amounts assessed for collection of local and national taxes. Individual income approximates wage and salary payments in the national accounts. Each municipality taxes its own residents.[13] Accordingly, one municipality is credited with income that may have been earned by its residents at a workplace in another municipality. The enterprise income principally is the capital income that is generated at workplaces in the municipality (and that is taxed at the national level).
- The private-sector share of household income: the numerator is wages and benefits received from the private sector. The denominator adds to these wages and benefits from the public sector plus publicly financed transfers.
- Private workplaces in the municipality: a workplace is similar to an establishment in U.S. data (i.e., the basic microunit for industry

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12. For example, there is neither a right nor left majority in around one-sixth of the cities.

13. Municipalities are compensated by the state for differences in tax revenues, which are due to differences in the tax base and to demographic differences affecting local public expenditure.

analysis). Total private-sector activity equals activity per workplace multiplied by the number of workplaces. Accordingly, an increased number of workplaces need not imply a larger private sector if there are many small new workplaces.

None of these measures directly captures activity in the unreported shadow economy. By some measures, this may comprise 5 to 15 percent of GDP. Accordingly, municipality policies that negatively affect private business activity may be partly offset by greater activity in the shadow economy.

Tables 8.1 through 8.3 provide some descriptive data and correlations. They are mainly self-explanatory, but some highlights deserve mention. Table 8.1 shows the business community to be faint in its praise of the local public sector. The scores hover below the middle of the one to six range, and there is no discernible trend. By contrast, as mentioned previously, private contracting is growing rapidly, with the private share of municipal budgets having nearly doubled over the 1997 to 2003 period. Politically, municipalities tilt slightly left. There was small but nontrivial party turnover in the 2002 elections, which led to slightly more right-left polarization than before. Both tables 8.1 and 8.2 highlight again the importance of Sweden's public sector: over half of household income in the average municipality comes from public-sector employment or transfers.

Table 8.3 provides descriptive correlations (panel A) and regressions (panel B). The variables in the latter are chosen somewhat arbitrarily, and no causal inferences should be drawn from them (especially the between-municipality regressions in part 1 of panel B). Our goal here is to give the reader a sense of the important regularities (and nonregularities) in the makeup of the political economy of Swedish municipalities. Panel A, which is dominated by between-municipality effects, shows that the municipalities most friendly to business (high survey scores, relatively low tax rates, high private-contract shares) tend to have relatively large private sectors and lean to the right politically. The between-regressions in panel B suggest that both these factors (and where relevant, lower tax rates) contribute independently. The one wrinkle here is with private contracting. This has gone furthest in large, high-income cities and in the Stockholm area, where the private-contract share is over double the national average. Neither city size nor income nor location seems consistently related to the other indicators.

The within-municipality regressions (panel B.2) confirm some of the cross-sectional patterns. So, a tilt to the right in the 2002 elections or an increase in tax rates tends to be associated with lower scores on the SN survey. However, these regressions are more interesting for what they do not show. For example, each includes among the regressors an estimate of the exogenous component of the size of the local economy. This is derived from the presample period industry composition of local employment and

Table 8.1   Descriptive statistics: Political economy of Swedish municipalities, 2001 to 2004

	Sample size	Mean	Standard deviation	Within SD	Notes
Confederation of Swedish Enterprise survey					
Unfair public competition?	1,142	3.19	0.48	0.24	1
(1 = big problem, 6 = no problem)					
2001	273	2.87	0.47		2
2002	273	3.11	0.40		2
2003	273	3.56	0.39		2
2004	273	3.19	0.39		2
Quality of bureaucracy and regulation					
(1 = bad, 6 = excellent)	1,142	2.66	0.27	0.14	1
2001	273	2.61	0.27		2
2002	273	2.64	0.28		2
2003	273	2.71	0.27		2
2004	273	2.69	0.27		2
Municipal council seats, shares					
Right-wing parties	580	0.45	0.12	0.03	3
Left-wing parties	580	0.50	0.11	0.03	3
2002 election transitions					
Right majority gained	18				4
Right majority lost	12				4
Left majority gained	20				4
Left majority lost	15				4
Local tax rates (%)					5
Total	1,158	31.32	1.13	0.42	
Municipality	1,158	21.25	1.32	0.21	
County	1,154	10.10	0.54	0.33	
Private contracting (%)					6
2001 to 2003	868	6.11	4.81	1.32	
2001	289	5.51	4.19		
2002	289	6.21	4.94		
2003	290	6.62	5.20		
1997	287	3.57	3.11		7

Notes: Subsequent regressions may use transformations of these variables. "Within SD" is the standard deviation within municipalities, across years, and net of year fixed effects. 1 = sample includes municipalities with missing data for some years. 2 = sample includes only municipalities with data in all years. 3 = share of seats in the 1998 and 2002 elections held by the main right-wing parties (Moderates, Liberals, Christian Democrats, Center). 4 = majority means that the coalition has over 50 percent of the seats. There are 580 potential transitions for the 290 councils in 2002. 5 = local tax or left-wing parties (Green, Social Democrats, Left). Other parties not classified. 6 = payments to private contractors as percent of municipality's total expenditures. 7 = shown for comparison only.

the within-sample period *national* trends in industry employment.[14] That expected employment variable has no consistent relation to the political

14. Specifically, we have a roughly one-digit industry breakdown of employment by municipality. We take the 1999 composition as a base year. Then, we multiply the base-year employment in each industry in each municipality by an index (1999 = 1.0) of total Swedish

Table 8.2   Descriptive statistics: Economic variables, Swedish municipalities, 2001 to 2004

	Observations	Mean	Standard deviation	Within SD	Notes
Aggregate indicators (per capita)					
Personal income (SEK 000)	1,157	141.18	16.79	2.070	1
Personal + enterprise income (SEK 000)	1,157	152.09	25.13	7.290	1
Employment (2001 to 2003)	868	0.40	0.09	0.009	2
Private sector					
Share of household income (2001 to 2003)	868	0.49	0.08	0.007	3
Share of employment (2001 to 2003)	869	0.62	0.08	0.015	4
Private workplaces per 1,000	1,158	107.46	29.96	3.280	

Notes: Subsequent regressions may use transformations of these variables. "Within SD" is the standard deviation within municipalities, across years, and net of year fixed effects. 1 = assessed income before deductions and exemptions for assessing local and national taxes. Local taxes are assessed only on personal income. 2 = employment at workplaces located in the municipality. 3 = household income from privately financed wages and benefits/(private + public wages and benefits + public transfers). 4 = employees at privately owned workplaces/employees at all workplaces.

economy variables. Thus, we can rule out, for example, that incipient good times become reflected in business peoples' praise for the local government or in a rightward tilt politically. Also, the last within-regression suggests that business perceptions of unfair competition do not move significantly in the short run when the private sector receives more municipal contracts.

Finally, all of the correlations and regressions suggest that the two elements of the SN survey may be measuring much the same thing. The two are highly correlated across and within municipalities, and they share similar coefficients in the between-regressions. Accordingly, we henceforth will work with an average of the two elements, which we chose to regard as an overall indicator of probusiness policies.

8.2.2   The Local Economy and Political Economy

Table 8.4 contains a more systematic look at the data. It shows results of within- and between-municipality regressions in which the dependent variable is some economic outcome and in which one of the political economy variables is on the right-hand side. This procedure in effect treats the political economy measures as alternative depictions of similar underlying local policies, a view which is roughly consistent with the data in table 8.3. We also include a couple of regressions with two of the political economy variables on the right-hand side to indicate that nothing much hinges on our estimation strategy. The within-regressions are identified from movements, net of fixed-year effects, over three or four years within each of the 290 munici-

employment in that industry for each year. The result is an estimate of what total employment in the municipality would have been if employment in each of its industries had grown at the national average rate after 1999. This estimate is unaffected by any municipality policy change or political shift after 1999 (that differs from the national average).

Table 8.3   **Correlations and descriptive regressions: Political economy variables**

Notes		Unfair public competition (1)	Municipal bureaucracy and regulation (2)	Local tax rate (3)	Right-wing seat share (4)	Private contract (%) (5)
	A Correlation coefficients, political and economic variables					
	Municipal bureaucracy/regulation	.61				
	Local tax rate	−.23	−.27			
	Right-wing seat share	.37	.33	−.37		
	Private contract (%)	.24	.13	−.46	.34	
	Personal income per capita	.28	.14	−.31	.15	.66
	Private-income share	.35	.35	−.55	.36	.49
	Private-employment share	.34	.39	−.39	.33	.21
	Private workplaces per capita	.12	.01	.15	.33	−.08
	Population (log)	−.15	−.06	−.38	.06	.42
	Stockholm region = 1	.15	.05	−.36	.18	.69
	B Descriptive regressions					
	1. Between-municipalities coefficients					
1	Unfair public competition			−.019[a]		.369[a]
1	Municipal bureaucracy			−.380		
	Local tax rate	−.186	−.156			−.714
	Right-wing seat share	1.649	1,435	−.658[a]		7.559
	Private contract (%)	.015[a]	−.001[a]	−.061		
	Per capita income (log)	.028[a]	.099[a]	.941[a]	−.242	14.315
	Private-income share	3.842	4.370	−3.768	.706	−9.356
	Population (log)	−.390	−.222	−.271	−.002[a]	.854
	Stockholm region	−.151[a]	−.634	.109[a]	.038[a]	7.459
	Between R-square	.53	.28	.48	.17	.69
	Number of observations (municipalities)	851 (289)	851 (289)	851 (289)	578 (289)	851 (289)
2	*2. Within-municipalities coefficients*					
3	Expected employment (log)		−6.427[a]		−.366[a]	10.054[a]
	Unfair public competition					.035[a]
4	Municipal bureaucracy and regulation	.82				
	Local tax rate		−.153		−.008	.385
	Right-wing share		.169[a]			1.098[a]
	Private contract (%)		.003[a]			
	Within R-square		.55		.07	.15
	Number of observations (municipalities)	1,142 (290)	851 (289)		578 (289)	851 (289)

Notes: 1 = expressed as a standardized (0,1) variable. 2 = all regressions include year and municipality dummies. Standard errors (not shown) are clustered by municipality. 3 = predicted employment, given presample industry composition of municipality and national trends in industry-specific employment. See text. 4 = first column gives within-municipality correlation between "unfair public competition" and "municipal bureaucracy/regulation." Subsequent results on this line and for the next column are for a standardized (0,1) average of the two standardized variables.

[a]Coefficients have *P*-value > 0.05. All others have *P*-values < 0.05.

palities. The between-regressions are just cross-municipality averages with added controls for municipality population and the Stockholm region.[15] As expected, the within-results tend to be weaker, but the presumed direction of causality is perhaps a bit easier to swallow than for the between-regressions.

15. In the Swedish context, this region is an outlier. Per capita income here is around 20 percent above the sample average, as is the private share of household income and employment. We also tried dummies for Sweden's far north, which lies at the other end of these distributions, but these never proved significant. Table 8.4 does not show any of the results for these controls, because they are peripheral to our inquiry. In summary, larger municipalities, and of course the Stockholm region, have above-average incomes, employment, and private-income

Table 8.4   **Local public policies and the local economy and private sector, 2001 to 2004**

		Political economy variable							
		SN survey[a] (1)		Tax rate[a] (2)		Private contracts[a] (3)		Right-wing share[a] (4)	
Notes	Economic outcome[b]	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t
	Total (per capita, logs)								
	Individual + enterprise income								
1	Within	.004	0.9	−.011	2.7	.001	1.1	.034	0.9
1	Between	.022	3.1	−.024	4.0	.008	3.8	.059	1.2
	Within (multi)[a]	.003	0.6	−.013	3.3				
	Between (multi)[a]	.015	2.0	−.017	2.5				
2	Employment (net of expected)								
	Within	.004	1.7	.008	2.8	.002	2.1	−.062	1.2
	Between	.013	4.0	−.008	3.5	.002	2.0	.103	5.2
	Private-sector shares of								
3	Household income								
	Within	.002	2.3	−.002	2.2	−.0001	0.4	.024	1.6
	Between	.042	10.8	−.032	9.2	.004	3.1	.194	6.2
	Within (multi)[a]	.002	2.0	−.002	2.5				
	Between (multi)[a]	.033	7.6	−.016	4.4				
	Employment								
	Within	.002	1.2	−.001	0.5	.0004	0.6	.023	0.8
	Between	.047	9.2	−.035	7.9	.005	3.1	.228	5.8
2	Employment (net of expected)								
	Within	.001	0.8	−.0003	0.1	.0001	0.8	.011	0.4
	Between	.016	5.4	−.017	6.9	.005	5.4	.153	7.5
	Private workplaces (per capita, log)								
	Within	.003	0.9	.007	3.4	.002	2.0	−.062	1.1
	Between	.006	0.3	−.003	0.2	.016	3.2	.958	8.4

Notes: 1 = Each "within" regression includes year and municipality dummies, and standard errors are clustered by municipality. Each "between" regression includes the log of population and a dummy for the Stockholm region. Coefficients for all these controls and regression summary statistics are not shown. Sample sizes vary according to the variables: total income, the SN survey, right-wing seat share, and tax rates are available for most municipalities for 2001 to 2004. Employment, private workplaces, private contracts, and private-household income shares are available for 2001 to 2003. There are 290 municipalities. 2 = Expected employment is computed as described in text. We have a similar but noisy measure for private employment. It is the expected employment in industries with mainly private employers (all one-digit industries, except government, health, and education). For total employment, we deduct the log of expected employment from the log of actual employment. For the private-employment share, we use our noisy measure of expected private employment to construct an expected private-employment share and deduct that from the actual private-employment share. All employment data are for workplaces in the municipality. Thus, per capita employment can and does occasionally exceed 1.0. 3 = household income from privately financed wages and benefits/(private + public wages and benefits + public transfers). The denominator includes government transfers, as well as government wages and benefits.

[a]Dependent variable in each regression is the indicated economic outcome. The political economy variable in each column is entered separately, except for regressions denoted (multi), where both indicated variables are entered

[b]Economic outcomes under "total" are municipality totals divided by population. "Private-sector shares" are the fraction of the total originating in the private sector. The "SN survey" is a standardized (0,1) variable that averages the standardized values of "unfair public competition" and "municipal bureaucracy and regulation" as described in table 8.3. Other variables are as described in tables 8.1 through 8.3.

All of the results need to be taken with some caution: undoubtedly, causality runs both ways, and these data are too crude to do much more than state

shares. Private-employment shares are unrelated to population (but higher around Stockholm). Private workplaces per capita are more numerous in the smaller municipalities (but there is no regional difference).

that caveat.[16] Accordingly, we try to emphasize the more-or-less consistent patterns in the data.

While individual results vary in strength, the broad pattern can be gleaned from the first two columns of table 8.4. Municipalities that business people perceive as friendly and that have lower tax rates tend to have higher incomes, which are generated in larger private sectors. That pattern shows up in both the short-run (within) and long-run (between) relationships. The only wrinkle is the significant positive within-coefficient of local tax rates, combined with the equally strong negative between-effect, in the total employment regressions. One inference is that public-sector expansion raises employment in the short run but reduces it in the long run.

Some of the magnitudes in the between-regressions are quite substantial. Consider, for example, the –0.024 between-coefficient for local tax rates at the top of column (2). This is an estimate of the effect of a +/–1 point move in the local tax rate on the log of per capita income. A 1-point move in local tax rates is around 3 percent, so the –0.024 coefficient implies that about three-fourths of the potential revenue from a tax increase ultimately is lost because of erosion of the tax base.[17] While this estimate of the reduction of the tax base may seem large, we would suggest that the result not be dismissed lightly. A reason for doubt would be that the tax rate is proxying for some force that makes intrinsically low-income municipalities adopt high tax rates. If that is true for Sweden, it is certainly not generally true. For example, while we have not done the same simple between-state exercise for the United States, we suspect it would show, if anything, results opposite to those we find for Sweden: the high tax rate states in the United States (New York, California, Massachusetts) include some with the highest per capita incomes. It is not the case that low-income Swedish municipalities need to have higher tax rates in order to provide the services they are mandated to offer. A state redistribution scheme fully compensates municipalities for most structural causes (such as demography) of lower tax revenue or higher spending on services.

The between-tax coefficients for the private-sector income and employment shares are even more startling. While some of the variables are not directly comparable, it is worth tracing through the implications of a 1-point local

16. We gave into the usual temptation to search for instruments. For example, we tried using the results of the 2002 municipal elections to instrument for some of the other policy variables. However, as table 8.3 suggests, the connection here is too weak for this kind of strategy to be useful.

17. For example, suppose a municipality with income of 100 now has a local tax rate of 31.32 percent (the sample average of the municipality, plus county tax rate). So, it collects 31.32 in taxes. Now the municipality wants to raise revenue by 1.00, so it raises the tax rate to 32.32. However, the regression implies that a 1-point tax increase will reduce income by approximately 0.024 percent. So ultimately, the tax base will decline from 100 to 97.60. The 32.32 percent tax on the 97.60 income will yield 31.54 in revenue, which is only 0.22 higher than the original revenue of 31.32. So, 0.78 of the potential revenue will be lost due to the erosion of the tax base following the tax increase.

tax rate increase for the size of the private sector if the between-coefficients are causal: as mentioned, total income would fall 2.4 percent. Now read down column (2) to the –0.032 between-coefficient for the private share of household income, and note from table 8.2 that this share averages just under half (0.49). So, the 1-point tax rate increase would reduce the private share to around 0.46. All in all, these results imply that private-sector-based incomes would fall by nearly three times the percentage increase in the tax rate.[18] The same exercise for private employment yields a percentage decline that ranges from the same to twice the percentage tax rate increase.[19]

The between-coefficients in the SN survey also imply sizeable effects. Again, the caveat about causality is in order (as is the counter-implication of U.S. experience, where low-income states and cities often adopt business friendly policies to attract businesses to their area). For example, the 0.022 coefficient near the top of column (1) suggests that per capita income will rise by 4.4 percent if a city moves from moderate hostility (1 standard deviation below the mean) to moderate friendship toward business (1 standard deviation above the mean) on this survey.[20] This may not sound like much, but

18. Consider the municipality in the previous footnote that raises its tax rate by 1 point and thereby suffers a reduction in its tax base of 2.4 percent, from 100 to 97.60. According to table 8.2, 49 percent of the average municipality's household income is derived from the private sector. Though the tax base includes enterprise income as well as household income, we will assume for simplicity that 49 of the 100 of initial income came from the private sector, and the remaining 51 came from the government sector. After the tax increase, not only does the income decline to 97.60, but a smaller percentage also comes from the private sector. Specifically, the –0.032 regression coefficient in the private-income share regression implies that the private-income share declines from 0.49 to 0.458. Thus, private-sector income will be 45.8 percent of the 97.60 total income, or 44.70. This is almost 9 percent (8.78 percent) below the pretax increase private-income level of 49. In sum, a tax increase of just over 3 percent (+ 1/31.32) reduces private-sector incomes by a percentage almost three times as great.

19. The larger estimate is based on the –0.035 between-coefficient in column (2) in the private-employment share regression. The smaller estimate is based on the –0.017 coefficient in the regression immediately below that. We will illustrate the larger estimate by supposing that a municipality has 1,000 employees prior to a 1-point increase in the local tax rate, from the sample average of 31.32 percent to 32.32 percent. Of these 1,000 workers, 620 work in the private sector (based on the sample average private-sector share in table 8.2). The between-coefficient in the total employment regression (–0.008) implies that the tax increase will reduce total employment by 0.8 percent to 992 workers. The –0.035 coefficient in the private-employment share regression implies that the 1-point tax increase will reduce the private-sector employment share from 0.62 to 0.585. Accordingly, after the tax increase, 58.5 percent of the 992 workers, or 580 workers, will be employed in the private sector. This is 6.5 percent fewer private-sector workers than the 620 who were employed prior to the tax increase. The 6.5 percentage reduction in private employment is around twice the percentage increase in the tax rate.

20. Note that the SN survey variable is scaled to have a mean of 0 and standard deviation of 1. So, the coefficient of 0.022 measures the effect of a 1-standard-deviation change in the survey score. The 2-standard-deviation move described here would therefore raise income by twice the coefficient, or approximately 4.4 percent.

But the reader should not take the estimate literally. The coefficient is measuring a variety of forces summarized in one variable—the SN survey. When we enter both the SN survey variable and the tax rate in the same between-regression, the coefficient of the survey declines around 40 percent (and the –0.024 tax coefficient drops by around a fourth).

in egalitarian Sweden, it is around a fourth to nearly a half of the standard deviation of per capita income across Swedish municipalities.[21] The implications for the size of the private sector of the relevant between-regressions are even more dramatic.[22]

The remaining political economy variables—private contracting and party shares in the municipal council—mostly echo the preceding results. Generally, higher aggregate incomes and greater private-sector shares tend to be associated with municipalities that have more private contracting or that lean to the right politically. However, the effects here tend to be measured a bit less precisely than the tax rate and SN survey effects.[23]

The private workplace variable behaves differently than the other measures of the private sector. There is no robust evidence that business friendly policies are associated with more private businesses. Indeed, the short-run (within) tax rate effect is significantly positive. Recall, however, that the number of private workplaces can increase, even if the private sector contracts in the aggregate. Thus, the results in column (2) of table 8.4 hint that new workplaces opening in the wake of a tax increase are smaller than average and make up for only part of the reduced activity at established workplaces. To some extent, this apparently odd stimulus to private workplaces from a tax increase may reflect the greater ease with which small workplaces can evade taxes by operating partly in the shadow economy.

On the whole, we think the results in table 8.4 should encourage a broader investigation into the impact of local public policies on economic activity, in general, and on private-sector activity, in particular. Some of the individual results are weak, and we would reiterate caution about interpreting each result as a causal effect of a particular policy. However, we would emphasize the broad pattern in the data: municipalities that show up well on most any probusiness metric or that move in that direction also tend to have better-performing local economies and larger private sectors. These results

21. From table 8.2, note that the mean of the per capita income variable is around 150,000 SEK, with a standard deviation of around 25, or 17 percent. So, 4.4 percent is around a fourth of this latter figure. Note, however, that the between-regression includes controls for population and Stockholm, which reduce the unexplained standard deviation to around 10 percent. Accordingly, a 4.4 percent income gain would be nearly half a standard deviation for average-sized municipalities, either within or outside the Stockholm region.

22. For example, if a municipality with income of 100 raises its survey score by 2 standard deviations, the between-coefficient in the total income regression (0.022) implies that total income will rise by twice the coefficient, or 4.4 percent, to 104.40. Prior to the score improvement, 49 of the 100 income was from the private sector (based on the 0.49 private-sector share mean in table 8.2). According to the between-coefficient in the private-income share regression (0.042), the private-income share would rise from 0.49 to 0.532. Private income would then be 53.2 percent of the 104.40 total, or 55.54. This is 13.3 percent more than the initial level of 49, or in percentage terms, three times as much as the increase in total income.

23. They also tend to be smaller numerically. For example, the results imply that only a small part of the effects of raising the tax rate by 1 percentage point would be offset by devoting all of the revenue to private-sector contracts.

for Sweden are similar to those found for the United States and India, where the probusiness metric in both cases concerned labor legislation.[24]

8.2.3   Long-Term Growth and Local Public Policies

In tables 8.5 through 8.8, we look at the connection between local policies and growth rates rather than the level of local economic activity. Specifically, we first ask how the policies that a municipality had in place in the early 1990s are related to the municipality's growth over the subsequent decade or so. We think the answer to that query reinforces the previous hints about the effects of local policies. Then, we ask how policy changes within a municipality during the decade are related to growth within the period, and this adds still more weight to the preceding results.

We focus on the period from the early 1990s and forward rather than using an even longer period, because prior to the 1990s, municipalities were subject to a form of state subsidies that may have given rise to quite different relations.[25]

We have only two measures of the local political economy available to us for the early 1990s. These are the local tax rate[26] and the party distribution of seats resulting from the 1991 municipal election.[27] Accordingly, the growth measures and policy indicators are summarized in table 8.5, and table 8.6 investigates whether growth in a municipality's economy over the subsequent decade is related to these two indicators of the initial conditions in the political economy of the municipality.

Because of the decade-long time frame, we drop the assumption implicit heretofore that population is exogenous, and we treat it as endogenous, along with other aggregates such as employment and income. Indeed, resource mobility over long periods suggests that much of the impact of one municipality's policies will show up in such aggregates rather than, say, in wage rates or in the size of the private sector. For example, a positive demand shock to the size of one municipality's private sector may raise per capita wage and business incomes in the short run, but that will induce migration of resources

24. Holmes (1998) found that U.S. counties (similar to Swedish municipalities) on the pro-business side of a state border grew substantially faster than adjacent counties on the anti-business side of the border. Besley and Burgess (2004) found that Indian states that amended their labor laws in a prolabor direction experienced subsequent decreases in (formal) economic activity compared to states that did not change their labor laws.

25. During the 1970s and 1980s, municipalities received state transfers as a share of their expenditure. This meant that municipalities that raised taxes received matching state funding and could increase their expenditure and employment by about twice the increase in tax revenue. This was a main engine for the large increase in public-sector employment in the period from 1970 to 1990. It also meant that municipalities that raised taxes faster may well have seen greater increases in employment during that period.

26. At that time, this included a small parish tax in addition to the municipal and county tax. The parish tax was eliminated in the mid-1990s.

27. The next election occurred in 1994. When the initial year of any growth rate is 1994 or later, we use the 1994 results as the initial condition.

Table 8.5   **Growth rates and initial conditions: Swedish municipalities, 1993 to 2004, summary statistics**

Growth rate variables	Mean	Standard deviation	Unit
A. Size of the economy			
Population	–0.30	0.78	% per year
Employment	0.36	1.05	% per year
Income (individuals + enterprises)	3.88	1.03	% per year
Income per capita	4.17	0.52	% per year
B. Private sector			
Employment share	0.603	0.508	parts of 100 per year
Income share	0.474	0.273	parts of 100 per year
Workplaces per capita	0.78	1.08	% per year
Initial conditions			
1993 local tax rate	31.66	1.22	% points
1991 right-wing party share	0.497	0.107	share

Note: Growth rates are measured over the decade 1993 or 1994 to 2003 or 2004, except workplaces for which initial year is 1997 and private share of household income for which initial year is 1995. Income is nominal SEK. Deduct approximately 1.3 percent per year for real growth rates.

to the municipality. The migration will expand aggregates such as employment and population while bringing per capita incomes back down. The tax base and hence tax revenues will also expand, offsetting some of the effects of the demand shock on the relative size of the private sector.

A long-run adjustment process such as this seems consistent with the results in table 8.6, which reveals substantial effects of the initial conditions on subsequent growth. The direction of these effects is entirely consistent with the previous analysis of the first few years of the new millennium, where the political climate in the early 1990s was friendlier to business (low taxes, high right-wing party seat shares) growth over the subsequent decade. This holds true for most every variable examined, including per capita and private-sector share variables.[28] But the largest effects numerically, and the most reliable statistically, tend to show up, as expected, in the overall size of the local economy. The results are robust to controls for the expected growth of the local economy, for the Stockholm region, and for the initial size of the municipality.[29]

The magnitudes of some of the effects implied by table 8.6 are surprisingly

28. The only exception is the marginally significant negative coefficients of the right-wing seat share in the private-employment share regression.

29. Usually, adding the Stockholm region dummy results in a smaller estimated tax rate effect. This reflects the fact that the Stockholm region had lower initial tax rates and higher subsequent growth rates than the rest of Sweden. It is not clear to us that this average difference between the Stockholm region and the rest of Sweden should be treated as exogenous, which is implicitly what we are doing by adding the Stockholm area dummy to the regression.

Table 8.6 Growth of Swedish municipalities, 1993 to 2004 and initial conditions

Dependent variable: Annual growth rate or change	Beginning of period value of				Expected growth of				Other controls		R-square	Root mean square error
	Right-wing share		Local tax rate		Employment		Private share of employment		Stockholm area	Population		
	Coefficient	t	Coefficient	ν	Coefficient	t	Coefficient	t				
	Total economy											
1. Population	1.498	4.1	−0.330	9.4							.40	.61
	2.053	7.8	−0.146	4.7					P	P	.65	.47
	2.341	8.5	−0.122	4.0					P	P	.66	.46
2. Employment	3.918	7.5	−0.156	2.9	0.578	3.2					.40	.82
	3.862	7.3	−0.115	2.1	1.645	7.1			0	P	.42	.81
(net of expected growth)	3.782	7.5	−0.122	2.4	1.161	3.6			0	P	.30	.83
3. Income (individual + enterprise)	3.028	6.7	−0.415	9.9							.47	.75
	3.977	9.0	−0.280	6.6	1.458	7.9					.55	.69
	3.883	9.4	−0.213	4.7	0.685	3.2			P	P	.61	.65
4. Income (individual + enterprise) per capita	1.529	5.6	−0.085	3.0							.19	.47
	1.536	5.4	−0.084	2.6	.010	0.1					.19	.47
	1.488	5.5	−0.095	2.7					0	0	.19	.47
	Private sector											
1. Employment share (×100)	−0.758	2.1	−0.056	1.9							.03	4.96
	−0.677	1.8	−0.058	2.1			0.966	3.3			.06	4.90
	−0.634	1.7	−0.002	0.1			0.713	2.8	P	0	.11	4.76
2. Household income share (×100)	0.239	1.6	−0.056	3.3							.09	0.26
	0.290	2.1	−0.052	3.4			0.059	3.3			.13	0.26
	0.317	2.4	−0.011	0.7			0.026	1.4	P	P	.22	0.24
3. Private workplaces per capita	0.819	1.5	−0.235	4.5							.10	1.02
	1.186	2.0	−0.175	3.2			0.700	2.4	P		.12	1.02
	0.616	1.1	−0.087	1.7			0.047	0.2	P	0	.24	0.95

Notes: Dependent variable is an annual percentage growth rate (100 × annual log change), except for share variables, which are in annual point changes (100 × annual share change). Beginning-period value of right-wing share is usually the seat share from the 1991 municipal election, and the initial local tax rate is for 1993. However, for private-income share and private workplaces, the initial year is taken as 1995 (1994 election results and 1995 tax rates). Expected growth variables are constructed as described in text. Other controls are a dummy for the Stockholm area (twenty-six municipalities) and the log of the 1993 population. There are 286 to 290 municipalities in each regression. "*P*" means the coefficient of the variable is positive at $P < 0.05$; 0 means insignificant ($P > 0.05$).

(to a non-Swede) large. Table 8.7 summarizes a few of these effects by comparing growth in a hypothetical probusiness environment (right-wing party shares above and tax rates below the sample averages by one standard deviation) to growth in an antibusiness environment (vice versa). The aggregates (income, employment) grow over 1 percent per year faster in the probusiness municipality. While this may not sound like much, it is substantial relative to the growth rates Sweden has experienced over this period. It is the difference between declining employment and modestly growing employment. In terms of cumulative real income growth, the probusiness environment generates 80 percent more growth by 2003 than the antibusiness environment.

The growth effect is also large in the sense that it tends to corroborate the previous finding that higher tax rates may substantially erode a municipality's tax base. The regressions in table 8.6 suggest that well over half of the potential tax revenues from any tax increase is ultimately lost through slower growth of the tax base. To see this, focus on aggregate income, which is the ultimate tax base for the local public sector.[30] We will consider only the tax component of the policy-growth nexus (which, as indicated on line 6 of table 8.7, is under half the total effect of the counterfactual policy shift that the table analyzes.) So, imagine that in 1993, a municipality (with the national average party makeup of its municipal council) raised the local tax rate by 1 point, from 31.66 percent (the sample average) to 32.66 percent. That should increase the municipality's revenue by (1/31.66), or 3.16 percent, if there is no erosion of the tax base. However, the tax coefficient in table 8.6 (–0.213) suggests that income will grow 0.213 percent less per year than it would without the tax increase. By 2004, the smaller tax base engendered by this slower income growth would produce only 0.8 percent more revenue from the tax increase—not the 3.16 percent that might have been expected.[31] The slowdown of income growth after the tax increase is enough to offset around three-fourths of the potential revenue gain. This figure is quite consistent with some of the larger estimates of the tax effects in table 8.4. The two tables also tend to reinforce the view that higher tax rates are reducing

30. The capital income component is not taxed locally, but growth in capital contributes to taxed income in the long run.

31. To see this, consider two municipalities, A and B, which are average in every respect, except that B raises taxes by 1 point in 1993, from the sample average of 31.66 percent to 32.66 percent. Municipality A keeps its tax rate at 31.66 percent. Assume income is 100 in 1993 for both municipalities. So, both municipalities have 31.66 in local government revenue in 1993 before B raises the tax rate. In the ensuing eleven years ending in 2004, income in A will grow at a nominal rate of 3.88 percent per year, or 2.58 percent per year in real terms (see table 8.5). Accordingly, real (1993 SEK) income in A will have increased from 100 to approximately 132.34 ($= 1.0258^{11} \times 100$). The unchanged tax rate of 31.66 percent would produce 41.90 of local tax revenues from the 132.34 in income in A in 2004.

Now we wish to estimate how much more than this benchmark of 41.90 in local taxes B will collect in 2004, a decade or so after having raised its tax rate by 1 point, or 3.16 percent, from 31.66 to 32.66. The answer will be less than 3.16 percent more, because according to the regressions in table 8.7, B's tax base will grow more slowly than A's in the next eleven years. We will use the most conservative estimate of this effect, which is the –0.213 coefficient on the last line of panel A.3 in table 8.7. This means that income in B will grow at a real rate

Table 8.7   **Estimated impact of initial conditions on growth rates, Swedish municipalities, 1993 to 2003**

		Annual growth rate or change in			
Notes and lines	Initial conditions	Total income (%/year) (1)	Total employment (%/year) (2)	Per capita income (%/yr) (3)	Private share of income (pts of 100/year) (4)
1	Probusiness	4.56	0.91	4.45	0.521
2	*Average*	*3.88*	*0.36*	*4.17*	*0.474*
3	Antibusiness	3.20	−0.19	3.90	0.427
4	Probusiness advantage (1 to 3)	+1.36	+1.10	+0.55	+.047
5	in standard deviation units	+1.2	+0.52	+1.06	+0.34
6	percent due to tax rate	38.2	25.5	42.2	28.6

Notes: All estimates are based on coefficients of right-wing party share and tax rates in regressions with controls for expected growth of employment (or the private share of employment), log of population, and the Stockholm region. 1 = a municipality with a right-wing municipality council seat share of 0.607 (1 standard deviation above the average) and a local tax rate of 30.44 percent (1 standard deviation below average). 2 = a municipality with a right-wing municipality council seat share of 0.497 and a local tax rate of 31.66 percent, which are the sample averages. 3 = a municipality with a right-wing municipality council seat share of 0.393 (1 standard deviation below the average) and a local tax rate of 32.88 percent (1 standard deviation above average). 5 = the probusiness advantage on line 4 divided by the standard deviation of the growth rate or change in the sample. 6 = the part of the probusiness advantage on lines 4 or 5 due to the difference in tax rates assumed for lines 1 and 3. The rest of the advantage comes from the assumed difference in right-wing party seat shares.

income rather than the other way around.[32] That is, we see high taxes in the past, followed by low subsequent growth that eventually leads to the below-average income levels we found in the panel analysis.

We hesitate to do a similar counterfactual exercise for shifts in the makeup of the municipal council, because we think of that variable as a proxy for a whole set of policies that we cannot measure. Indeed, we would caution against too literal a reading of the tax increase counterfactual for the same reason.[33]

We also need to emphasize again the preliminary and suggestive character of the results. Public policies in Swedish municipalities tend to be highly persistent, even over long periods. Thus, a municipality with a high tax rate

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of only 2.367 percent per year, or 0.213 percent per year less than A's 2.58 percent growth rate. Thus, instead of the 132.34 tax base in A, municipality B's 2004 income will be only 129.35 (= $1.02367^{11} \times 100$), which is 2.26 percent below A's income. Municipality B's tax rate of 32.66 percent produces revenues of 42.25 on this 129.35 of income. This exceeds A's tax revenues of 41.90 by 0.35, or 0.84 percent. Thus, most of the potential revenue gain of 3.16 percent—more precisely, 73.4 percent of it (= (3.16–0.84) / 3.16)—has not been realized by B because of the subsequent erosion of the tax base.

32. If it is income that is causing tax rates, the story linking tables 8.4 and 8.6 would have to be that municipalities with poor unobserved growth prospects for the future also have a high current demand for public spending. Then, we would see high taxes correlated with low subsequent growth and eventually lower-than-average income levels.

33. Municipal council party shares and tax rates in 1993 are related to subsequent policies that we can measure. For example, a regression of the average SN survey responses for 2001 to

at the beginning of the 1990s very likely has a high tax rate now. Accordingly, the correlation between tax rates in 1993 and subsequent growth does not imply a causal link between the two.[34] Had we regressed the same growth rate on 2004 tax rates, the same negative correlation would be observed, but neither would this imply a reverse causation—that the growth somehow led to high tax rates in 2004.

The persistence in growth rates and political economy variables at the municipality level raises a concern that the correlation between the two is driven by unobserved or unmeasured heterogeneity across municipalities. That is, something that we do not measure—call it the local culture for short—produces both high growth and business friendly policies. On this view, the persistence of both the policies and the growth would simply reflect the durability of the local culture, but this would not imply that the policies produced the growth.[35]

One way to try to account for unobserved heterogeneity across municipalities is to treat it as a fixed effect and then to estimate the model from within-period changes in each of the municipalities.[36] We implement this in table 8.8, and as we will see, the results there enable us to rule out (unchanging) unobserved heterogeneity as the only reason for our previous results.

Another advantage of the fixed effects model is that it allows us to specify the growth process more precisely than we could in table 8.6. Specifically, think of growth in any aggregate, such as population, as the closing of a gap between some current long-run equilibrium value (Y_t^*) and the actual value at the start of the period (Y_{t-1}); if the gap between the equilibrium and the starting actual values is positive, then growth is positive, for example.[37]

2004 or the average private-contract share of a municipality's budget in 1997 to 2003 on right-wing seat share and tax rates for 1993 yields positive coefficients for the former and negative coefficients for the latter. The coefficients are precisely estimated (*t*-ratios in the 4 to 6 range) and quantitatively important.

34. One difficulty with exploring this causal link is that until 1991, municipalities that raised taxes receive generous matching funds from the state. Therefore, it may well be that higher taxes increased incomes before 1991 but decreased incomes after 1991. This distinction would be lost in panel regressions over longer periods.

35. Nor would it rule out such a causal link. A local culture that values growth may also enact policies that enable growth. A further difficulty is to disentangle measures that capture the overall demand for public spending from those that reflect local preferences. For example, Torsten Persson informs us that adding the share of the population below age fifteen and above age sixty-five as an explanatory variable to regressions like those in table 8.6 sometimes rendered the estimated coefficients for the tax rate nonsignificant. The motivation for adding these variables is that the young and old are primary consumers of local government goods (education and health care). So, municipalities with many young or old people might be expected to have high taxes and possibly lower growth, simply because they have fewer people who work. However, this interpretation is not clear cut, because municipalities are fully compensated by state transfers for any demographic disadvantage. On the other side, if higher shares of the elderly and young increase the vote for spending programs, the extra variables may simply dilute the estimated tax effect by introducing a determinant of the tax rate as an independent control variable.

36. We thank Torsten Persson for suggesting this.

Table 8.8   **Growth and political economy: Swedish municipalities, 1993 to 2004, fixed effects estimates**

Dependent variable: change in natural log of	Political economy variable				Expected employment		Lagged level of dependent variable		R^2 (within)	Number of observations	
	Right-wing share		Local tax rate							Total	Municipality
	Coefficient[b]	t	Coefficient	t	Coefficient	t	Coefficient	t			
1. Population	.012	2.5	−.0016	3.4	.034	1.2	−.046	2.4	.15	3,146	286
Equilibrium effect[a]	*.256*		*−.035*		*.739*						
2. Employment (1991–2004)	.054	3.4	−.0025	1.8	.327	4.3	−.170	7.8	.62	3,716	286
Equilibrium effect	*.326*		*−.015*		*1.928*						
3. Income (individual + enterprise)	.076	3.3	−.0004	0.2	.752	6.0	−.389	7.4	.26	3,146	286
Equilibrium effect	*.195*		*−.001*		*1.932*						
4. Income (individual + enterprise) per capita	.053	2.7	.0011	0.5	.381	4.2	−.615	13.3	.37	3,146	286
Equilibrium effect	*.085*		*.002*		*.619*						

Notes: Dependent variable is the change from the previous year in the natural log of the indicated variable, or the approximate growth rate (0.01 = 1 percent) for each year. Independent variables: the political economy variables are the right-wing party shares (0.01 = 1 percentage point) of the municipal council for that year (as determined by the previous municipal council election) and the local tax rate (percentage points; 1 = 1 percent). Expected employment is constructed as described in the text and in the note to table 8.3. This shows what employment would be in the municipality if all industry sectors in that municipality experienced the national growth in employment starting in the base year (1992). The lagged level of the dependent variable is included to implement the adjustment model described in the text. Each regression includes municipality and year fixed effects (not reported), so all the coefficients are identified from year-to-year changes within a municipality (less the national average change). All standard errors are clustered at the municipality level.

[a]This is the long-run effect of a unit change in the independent variable on the level of the dependent variable, based on the adjustment model described in the text. It is calculated by dividing the regression coefficient just above by the absolute value of the coefficient of the lagged level of the dependent variable. See text for elaboration.

[b]Right-wing share has a range of 0 to 1. So, the equilibrium effects (e.g., the 0.256 in regression 1, or the 0.256 in regression 1, or over 25 percent) are based on the implausible change from a 0 to 100 percent right-wing share. To obtain a more plausible value, these equilibrium effects can be divided by ten, which would give the effect of a 10-point swing in municipal county seat shares.

Specifically, ignoring an error term for a moment, the aggregate would change, according to

(1)
$$\Delta Y_t = a(Y_t^* - Y_{t-1}),$$

where the delta is the change over the period, and a is an adjustment coefficient, which generally should be less than one to allow for partial adjustment over arbitrary time periods, such as a calendar year. In our application, the municipality's political economy affects growth by changing the equilibrium or target values of some Y variable, such as population or employment. That is, suppose for simplicity that there is one index, X, that summarizes any municipality's political economy and that it is related to the equilibrium Y in that municipality by

(2)
$$Y_{it}^* = h_i + kX_{it},$$

where the i subscript denotes a specific municipality. Substituting equation (2) back into equation (1), multiplying through by the adjustment coefficient, a, and adding an error term gives

(3)
$$\Delta Y_{it} = ah_i + akX_{it} - aY_{i,t-1} + e_{it}.$$

In this model, the error term includes a durable, municipality-specific fixed effect (the otherwise unmeasured heterogeneity). We also allow for macroeconomic effects on local growth with year fixed effects and add the usual mean-zero error term. This gives an error term like

(4)
$$e_{it} = v_i + T_t + u_{it},$$

where the first and second terms are the municipality and year fixed effects, respectively. The parameters we are interested in are in equation (3). If the model makes sense, the estimated adjustment coefficient should be in the $(-1,0)$ interval, and we can recover the parameters of the equilibrium relation in equation (2) by dividing the coefficient of X in equation (3) by the absolute value of the adjustment coefficient.

Before discussing the estimates of the model in table 8.8, it is important to clarify how they can be compared to the results in table 8.6. Both sets of results describe the link between political economy and growth, but they answer different questions. In table 8.6, we ask whether municipalities that have more business friendly policies grow faster than other municipalities. In table 8.8, we ask whether any municipality—business friendly or not— experiences accelerated growth when it moves its policies in a more business friendly direction. The weight one chooses to give to each set of results involves a tradeoff: in our data, the substantial bulk of the variance—on

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37. We couldn't implement a model like this in table 8.6, because it would require the untenable assumption that every municipality, for example, is gravitating toward the same equilibrium population.

the order of 90 percent of the total variance—in growth rates and political economy variables is cross-sectional. Once the municipality and the time fixed effects are accounted for, there is relatively little year-to-year movement in either growth or policies. Thus, table 8.8 removes the possible unmeasured heterogeneity across municipalities, at the cost of leaving little variation left to be explained. Table 8.6 describes a much greater range of variation than table 8.8, possibly at the cost of a less-clear interpretation of the estimates.

These caveats understood, the results in the two tables are broadly similar. For population and employment, both the right-wing share and tax rate variables have the same signs and hint at similar magnitudes of effects in the two tables.[38] For income and income per capita, there are statistically or economically meaningful effects from the right-wing share variable in table 8.8 but none for the tax rate. This absence of a tax rate effect on the income related measures in table 8.8 is the one clear difference between the two tables.

The other results in table 8.8 are sensible. The expected employment variable—a municipality-specific measure of the effect of national employment trends—always has the expected positive sign. The coefficient of the lagged dependent variable—the adjustment coefficient in equation (1)—always lies in the (–1,0) interval implied by the model.

We think that the overall message coming from the results in tables 8.6 and 8.8 tends to be mutually reinforcing: municipalities that either have or move toward business friendly policies tend to grow faster than they otherwise would. However, these results should be viewed as the beginning rather than the end of an important inquiry. We would again emphasize that the particular variables that we use to measure local policies in tables 8.6 and 8.8—tax rates and municipal council politics—were selected based on data availability and should be regarded as proxies for a wider range of policies that affect a municipality's growth. The first part of the empirical analysis tried to suggest what some of those policies might be. We hope that these results will stimulate further research into the connection between local policies and growth. For example, which specific policies are more or less important in stimulating growth? We think the answers to such questions

38. For example, consider the 2.34 coefficient on the right-wing share variable in the third population regression in table 8.6. This means that a municipality with a 10-point above-average right-wing share grew 0.234 percent faster per year over the eleven-year sample period. That faster growth would compound into approximately a 2.6 percent higher population in 2004 than it would otherwise. In table 8.8, the 0.256 equilibrium effect of the same variable also implies a 2.6 percent higher population in the long run from a 10-point shift to the right in the makeup of the municipal council.

For tax rates, the magnitudes implied by the two tables are also broadly similar. In table 8.6, the tax rate coefficients for population and employment are –0.122, which implies a compound reduction of 1.3 percent over the sample period. This is just about the same as the equilibrium effect of the same change in tax rates on employment in table 8.8 (–1.5 percent), but it is around 2 percentage points less than the equilibrium effect on population (–3.5 percent) in table 8.8.

might provide an important part of any progrowth strategy for Sweden as a whole.

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