

CHAPTER 6

IMPACTS ON COMPETITIVENESS

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INTRODUCTION

Regional economic competitiveness depends on various factors including business costs, workforce quality, public infrastructure, quality of life, and the regulatory environment. Air quality regulations directly affect business costs, quality of life, and the regulatory environment. Specifically, the 2007 AQMP will affect regional economic competitiveness in two ways: (1) by imposing costs on business as a result of pollution control strategies; and (2) by improving the region's quality of life by reducing air pollution.

It is not possible at this time to quantify the costs associated with every control measure and benefits associated with every effect of clean air. Of all the intended emission reductions for clean air, costs for only 47 percent of the reductions can be quantified. Costs for the other measures are not available at this time because control methods, control efficiencies, emission reductions, or costs of control technologies are not presently known. The REMI model, used to analyze potential impacts of the 2007 AQMP, projects possible impacts on the cost of production, commodity prices, exports, and imports based upon expenditure made to implement each control measure and clean air benefits. The reliability of such projections is dependent upon the validity of the input. District staff believes that it would be inappropriate to make assumptions relative to cost impacts on the cost of production, commodity prices, profits, exports, and imports for unquantified measures. The analysis contained herein, therefore, considers only those measures and benefits for which quantification is available.

REGION'S SHARE OF U.S. JOBS

Table 6-1 shows the impacts of quantified benefits and measures on the region's share of national jobs. As the air gets cleaner, the four-county region is predicted to gain a larger share of total national jobs through 2025. The increase ranges from 0.021 percent in 2014 to 0.062 percent in 2023, compared to the baseline projection without the AQMP. A similar trend and magnitude are also observed for the region's share of manufacturing jobs in the nation.

As investments in infrastructure and pollution control equipment or devices occur in the beginning of a control measure's implementation period (e.g., the year 2007), the region will continue its trend of having a larger share of the total national jobs and national manufacturing jobs. However, as the costs of implementing these measures are continually amortized over the project period, fewer jobs would be created, thus resulting in a decrease in the region's share of national jobs (in 2014, 2020, and 2023). The emphasis of mobile source controls in the 2007 AQMP helps to shore up manufacturing jobs throughout 2020 as demand for control devices boosts their local production.

Due to the extremely small values presented here, either the quantified benefits or the quantified measures are not expected to result in discernible differences in the four-county region's share of national jobs over the analysis period.

TABLE 6-1
 Impacts on Region's Share of U.S. Jobs for
 Quantified Benefits and Quantified Measures (percent)

	Percent Share of U.S. Jobs for Quantified Benefits			Percent Share of U.S. Jobs for Quantified Measures		
	2014	2020	2023	2014	2020	2023
<u>Total Jobs</u>						
With Quantified Benefits	5.416	5.551	5.626			
With Quantified Measures				5.379	5.482	5.538
Without 2007 AQMP	5.395	5.504	5.564	5.395	5.504	5.564
Difference	0.021	0.047	0.062	-0.016	-0.022	-0.026
<u>Manufacturing Jobs</u>						
With Quantified Benefits	5.486	5.592	5.666			
With Quantified Measures				5.468	5.542	5.584
Without 2007 AQMP	5.464	5.539	5.597	5.464	5.539	5.597
Difference	0.022	0.053	0.069	0.004	0.003	-0.013

Some of the numbers are rounded.

COST OF PRODUCTION AND PRICES

The four-county area has the most diversified metropolitan economy in the U.S. Cleaner air will attract more economic migrants into the area. As the mix of labor skills expands, the access to quality labor would have a positive impact on labor productivity, thereby reducing the cost of doing business for local industries. On the other hand, implementation of control measures increases the cost of doing business for affected industries.

Table 6-2 shows the percentage change in relative cost of production as a result of quantified clean air benefits and costs in 2014 and 2023 when the area attains both PM_{2.5} and ozone standards, respectively. An index of 0 indicates that there is no change in the cost of production relative to the rest of the United States. An index of above or below 0 means that the cost of production in the four-county areas resulting from the 2007 AQMP is higher or lower, respectively, than that in the rest of the U.S.

Nearly all the industries would experience a reduction in the cost of production due to clean air benefits, except for the real estate, rental and leasing sector. The transportation and warehousing industry is projected to experience the highest cost reduction (0.83 percent in 2014 and 1.21 percent in 2023). The same sector would also experience the highest increase in the cost of production from the implementation of control measures (0.73 percent in 2023), followed by the construction industry with an increase in the production cost of 0.51 percent in 2023. All the remaining sectors will experience a smaller magnitude of increase in production cost due to the 2007 AQMP control measures.

TABLE 6-2
Impacts on Cost of Production Relative to
Those in U.S. for Quantified Benefits and Measures

Industry	Quantified Benefit		Quantified Measures	
	2014	2023	2014	2023
Forestry, Fishing, Other	-0.08%	-0.23%	0.14%	0.18%
Mining	-0.02%	-0.04%	0.10%	0.19%
Utilities	-0.02%	-0.04%	0.12%	0.19%
Construction	-0.13%	-0.34%	0.30%	0.51%
Manufacturing	-0.10%	-0.26%	0.07%	0.12%
Wholesale Trade	-0.11%	-0.28%	0.04%	0.06%
Retail Trade	-0.09%	-0.24%	0.05%	0.08%
Transportation and Warehousing	-0.83%	-1.21%	0.35%	0.73%
Information	-0.07%	-0.17%	0.08%	0.14%
Finance and Insurance	-0.08%	-0.21%	0.06%	0.09%
Real Estate, Rental and Leasing	0.02%	0.11%	0.14%	0.22%
Professional and Technical Services	-0.10%	-0.30%	0.05%	0.07%
Management Companies and Enterprises	-0.11%	-0.35%	0.03%	0.05%
Administrative and Waste Services	-0.10%	-0.30%	0.03%	0.05%
Educational Services	-0.11%	-0.33%	0.05%	0.08%
Health Care and Social Assistance	-0.11%	-0.33%	0.04%	0.05%
Arts, Entertainment and Recreation	-0.08%	-0.23%	0.10%	0.14%
Accommodation and Food Services	-0.09%	-0.24%	0.06%	0.09%
Other Services (excluding Government)	-0.08%	-0.22%	0.07%	0.10%

Changes in production costs will affect prices of goods produced locally. The relative delivered price of a good is based on its production cost and the transportation cost of delivering the good to where it is consumed or used. The average price of a good at the place of use reflects prices of the good produced locally and imported elsewhere.

Based on the measurement of relative delivered prices in the REMI model, cleaner air is projected to result in lower delivered prices, as shown in Table 6-3. The effect of cleaner air on reducing the production cost in the transportation and warehousing industry is directly transmitted to a lower delivered price in this industry as well (0.96 percent reduction in 2023). Nearly all other industries share the same positive impact, which mirrors the effect of reduction in production cost. As expected, the relative delivered prices will rise as a result of implementing control measures throughout all the industries in the four-county economy.

TABLE 6-3
 Impacts on Delivered Prices Relative to Those in U.S. for
 Quantified Benefits and Measures

Industry	Quantified Benefit		Quantified Measures	
	2014	2023	2014	2023
Forestry, Fishing, Other	-0.01%	-0.03%	0.03%	0.03%
Mining	-0.01%	-0.01%	0.03%	0.05%
Utilities	-0.02%	-0.03%	0.09%	0.13%
Construction	-0.13%	-0.34%	0.31%	0.52%
Manufacturing	-0.07%	-0.17%	0.04%	0.07%
Wholesale Trade	-0.10%	-0.27%	0.04%	0.06%
Retail Trade	-0.09%	-0.24%	0.05%	0.08%
Transportation and Warehousing	-0.67%	-0.96%	0.20%	0.40%
Information	-0.06%	-0.15%	0.07%	0.11%
Finance and Insurance	-0.07%	-0.19%	0.05%	0.08%
Real Estate, Rental and Leasing	0.02%	0.11%	0.14%	0.22%
Professional and Technical Services	-0.10%	-0.29%	0.04%	0.07%
Management Companies and Enterprises	-0.11%	-0.35%	0.03%	0.05%
Administrative and Waste Services	-0.10%	-0.29%	0.03%	0.05%
Educational Services	-0.09%	-0.27%	0.04%	0.07%
Health Care and Social Assistance	-0.09%	-0.28%	0.03%	0.04%
Arts, Entertainment and Recreation	-0.08%	-0.21%	0.12%	0.15%
Accommodation and Food Services	-0.08%	-0.21%	0.05%	0.07%
Other Services (excluding Government)	-0.08%	-0.21%	0.06%	0.09%

IMPORTS AND EXPORTS

Table 6-4 summarizes the overall impact of quantified measures and benefits, respectively, on the region's exports and imports relative to the baseline projections. Cleaner air will increase quality of life for residents, and make the area more attractive to live and more competitive for businesses. As more people migrate to the area, the additional supply of labor would dampen real wage rates, thereby lowering production costs and product prices. As a result, production is projected to rise relative to its baseline condition. Increased production would translate to increases in exports and make the area more self-sufficient, thus able to satisfy the additional demand from local residents and other industries. Part of the demand increase is projected to be fulfilled by increases in imports.

Implementation of quantified measures is projected to increase output production in the region in the beginning years as investments come in (through 2010). This trend would be reversed in later years as the regulated community faces the impact of the additional cost of doing business. Demand for additional investments and other goods and services would be satisfied mostly by increases in imports throughout 2024. In later years, demand for goods and services would decline because of the current and carry-over effects of higher product prices resulting from the pass-through of additional control costs by affected industries. The strong local demand in earlier years pulls down exports in earlier years. In later years, lower production continues to exert a negative impact on exports. The dampened demand would also result in a reduction in imports.

It should be noted that the magnitude of all of these directional changes is relatively small when compared with the overall size of the four-county economy. For example, exports are projected to decrease by 0.35 percent of the baseline exports in 2023 resulting from implementing quantified measures.

TABLE 6-4
Impacts on Imports and Exports for Quantified Benefits and Measures

	Quantified Benefits				Quantified Measures			
	2010	2014	2023	2025	2010	2014	2023	2025
Demand*	+	+	+	+	+	+	-	-
Imports	+	+	+	+	+	+	+	-
Self Supply*	+	+	+	+	+	+	-	-
Exports	+	+	+	+	-	-	-	-
Output (Production)	+	+	+	+	+	-	-	-
Delivered Price	-	-	-	-	+	+	+	+
Cost of Production	-	-	-	-	+	+	+	+

A plus or minus sign means that there is an increase or decrease in the value of that economic variable resulting from the quantified benefits and measures of the 2007 AQMP relative to the baseline economic activities.

*Includes changes in demand due to changes in control requirements.

SUMMARY

The Socioeconomic Report examines competitiveness of local industries in four areas: the Basin's share of national jobs, cost of production, relative delivered prices, and exports and imports. The quantified measures and benefits of the 2007 AQMP are not expected to result in discernible differences in the four-county region's share of national jobs. The impacts on product prices of nearly all the sectors are projected to be less than one percent of their respective baseline indices. The impacts on imports and exports are relatively small as well.

The competitive analysis focuses on the impact on various sectors of the local economy. Individual control measures could result in impacts on individual companies. Competitiveness at the company level will be further considered during individual rulemaking procedures, to the extent feasible.

The actual effects of the 2007 AQMP (including unquantified measures and benefits) on regional competitiveness could vary from the projected effects of quantified measures and benefits for several reasons. First, the analysis assumes that all control costs are "extra" costs when compared to air pollution control costs in other regions. This ignores the fact that competing regions tend to follow the District's lead and adopt control measures with objectives similar to those proposed in the District or at a minimum have some level of control with its consequent costs. For example, a number of eastern states have adopted the California vehicle exhaust standards. The Socioeconomic Report underestimates the benefits from clean air that would increase regional attractiveness. In addition, as part of the 2007 AQMP, District staff is making efforts to maintain and further foster economic competitiveness in the region by:

- (1) Pursuing state and federal tax incentives for early replacement of higher-emitting engines or vehicles;
- (2) Developing demand side management programs (e.g., product certification programs and energy conservation measures); and
- (3) Seeking additional state and federal funding to further incentivize fleet turnover.

Programs such as the Carl Moyer Program and AB 2766 can assist in meeting air quality objectives through funding of emission reduction projects which are beyond what regulatory statutes call for.

Finally, costs of unquantified measures may also affect competitiveness if they are implemented solely in the region. The impact of proposed air quality regulations on competitiveness will be examined during the rulemaking process for each proposed rule.