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Exploring "Taxpayer- Payback Evaluation" of Manufacturing Extension: The Wisconsin Model

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Abstract

Expansion of the NIST-MEP system and consequent diversification of center models and services suggest the evaluation system may need to expand its focus to take into account: (1) non-traditional program features and their diverse outcomes, and (2) the need to use evaluation data in different state political economy contexts. In the Wisconsin environment detailed here, demonstrating hard "taxpayer-payback" and shaping the politician's view of manufacturing extension as an "investment", rather than as an "expenditure" item, may be important requirements for future in-state manufacturing extension budget requests.

Consequently, this paper attempts to demonstrate empirically the taxpayer-payback outcomes to manufacturing extension activities. It uses representative corporation financial balance sheet data for seven different manufacturing industries, along with field-credible scenarios about extension service impacts, and actual program service costs and fee levels. This information is used to model three scenarios generating increased *profits*, increased *sales*, and reduced physical *plant and equipment*, as a result of manufacturing extension projects with each of the seven firms.

Results with these data across the 21 possible cases show taxpayer-payback can reach as high as \$3.56 per \$1 of total public cost, or \$7.11 per \$1 for the state taxpayer receiving federal subsidy. There is considerable variation in payback outcome by industry and project type, however. Greatest paybacks occur through extension impacts on client *sales*, while paybacks from influencing client *profits* are lower and can be less than even, and paybacks from reductions in *plant and equipment* are negative, given the assumptions used. The costs of providing services and the fees charged by the center are together found to be a bigger component of the

estimated payback ratios than are clients' tax increases.

The positive taxpayer-payback ratios fall mostly in the 0.8:1 to 3.5:1 range, which is less than the \$8.00 figure previously quoted by NIST when comparing private client impacts to an original \$1 of federal investment. This highlights the importance of broadening future analyses of taxpayer-payback to include income taxes from employees, any taxes on later rounds of spending, input-output links to other industries, and wider economic development impacts. It also implies collecting the necessary financial balance sheet data before and after services, to make such analyses possible with real NIST-MEP clients.

Introduction

Each annual NIST-MEP solicitation and new manufacturing extension center funding round has resulted in not only growth, but also diversification, of the national system of centers and their service models. Broadly speaking, this diversification has been outward from the original "magnificent seven" group of relatively small, stand-alone, dedicated centers cored around NIST's own Advanced Manufacturing Project in 1992, towards more complex, broad-service models, multi-institutional partnerships, distributed networks, and sector-specific centers, in a 60-center system. However, later centers¹ join a movement whose overall momentum, direction, and evaluation methodology (including focus, metrics, data, and purpose), were initiated prior to their arrival. As such, any distinctive program features of the new centers, and their success relative to constraints within their own

¹The term "center" is used throughout to denote NIST-MEP "manufacturing extension center" or MEC, even though some of the 60 centers were originally "MTCs" (Manufacturing Technology Centers) or "MOCs" (Manufacturing Outreach Centers) funded under NIST-TRP and rolled over into MECs.

local political economies, may not be automatically captured by the existing evaluation system. This gap could be to the potential disadvantage of the new centers, and ultimately, of NIST-MEP as a whole.

This is not to argue that any one type of manufacturing extension center organization is necessarily better or worse than any other, or that NIST itself is incapable of flexibility and continuous improvement to accommodate such diversity. Anyone with professional experience relating to governments would readily acknowledge that NIST's dynamism, openness, and responsiveness is a model. Instead, this paper intends: (1) to draw attention to some novel performance features NIST may wish to take note of in its evaluation of a new center and for its own publicity; and (2) to focus on one particular evaluation dimension which may have increasing utility for all centers in the future: "taxpayer-payback". The paper draws on limited, but instructive, experience with the new Wisconsin Manufacturing Extension Partnership (WMEP), along with Wisconsin corporate balance sheet and tax data.

Background to the Wisconsin Manufacturing Extension Partnership

The WMEP is one of eighteen 1995 NIST-MEP awardees. This newcomer group brought the NIST-MEP national system up to a total of 60 centers in 42 states by February 1996. At the time of WMEP's July 1996 operational start with NIST funding, WMEP had 12 field agents in three regional offices and a projected first year NIST allocation of \$3 million. Eventual capacity is planned to be 50 agents statewide, and an annual projected budget of around \$6 million.

Organizationally, WMEP manifests many features of what it has been told is a classic "NIST nightmare", with: most of its personnel

working less than full-time (and nearly a third working less than half-time), a large governing Board of Directors (comprising 31 members), multiple partners (16 institutions, including seven university campuses and University Extension, seven Technical College districts and the Technical College System Board office, the state's Department of Commerce, two private universities, and various labor groups), resource-providers dominant, only three full-time management staff, no full-time marketing or computer person, and -- most difficult of all for operations -- not a single dollar of *unconstrained* in-state cash. Nevertheless, in just the first six months of WMEP's official life (its January through June 1996 start-up period), this distributed collaborative network did serve over 300 client companies with 419 manufacturing extension projects, 38% of which were long-term interacts. Of these, 34 small or medium-sized manufacturing clients were taken through an in-depth full-scale comprehensive manufacturing assessment. All this was done to favorable local press, and in excess of previously set performance goals.²

The service philosophy underlying this performance includes:

- (1) an emphasis on an holistic approach, which looks at the whole manufacturing enterprise and uses system-wide comprehensive assessments, followed by facilitated strategic planning, to uplift the whole operational culture to the next level in a progressive four-stage

²See Second Period Report to the Wisconsin Development Fund and the Wisconsin Department of Commerce on Activities Under Contract MEC FY95-0259 (1/1/96-6/30/96), by Chris Thompson and Jeff Oelke, WMEP, 432 N. Lake St., Suite B121, Madison, WI 53706 (August 1996).

sequence of manufacturing modernization;³

- (2) specialty extension assistance on three topics: plant layout, environmentally-conscious manufacturing, and labor-management relations;
- (3) relatively high use, and encouraged self-transformation, of existing state resources for use in extension services.

How these non-traditional characteristics are addressed or not by the NIST evaluation system is addressed below.

The present NIST evaluation requirements

An operational center presently has to collect and submit a variety of data on activities, events, personnel, services, expenditures, revenues, clients, and impacts, to NIST-MEP and other stakeholders. The main NIST data-collection and examination vehicles are the monthly and semi-

³This four-stage model of manufacturing modernization was adopted from Larry Schneider, Naidu Katuri, and Jim Brown, of the Northwest Wisconsin Manufacturing Outreach Center (NWMOC). This is a TRP-funded consortium based in Menomonie, WI, and comprising: UW-Stout Technology Transfer Institute, Chippewa Valley Technical College, Western Wisconsin Technical College, Nicolet Technical College, Wisconsin Indianhead Technical College, and Northcentral Wisconsin Technical College). The four stages are: (1) start-up company; (2) established modernization company, but with no modernization strategy in place, and requiring assistance with developing and implementing one; (3) established company with own modernization strategy in place but requiring refinements to its strategic plan and implementation assistance; and (3) cutting edge firm requiring advanced problem-solving.

annual center reports, the annual performance review, the third year review, and finally the rolling six months post-closure client follow-up telephone survey to ascertain service impacts on the clients. NIST's *internal* use of these data is for center performance reviews, which are wide-ranging and do include subjective consideration of performance in the light of local goals and models. NIST's *external* use is for national program defense, and focuses on a rational demonstration of tangible bottom-line client impacts, which are compared to the original federal taxpayer investment in establishing the centers and providing the services. This summary demonstration emphasizes six key "impact totals": "sales", "labor costs", "materials costs", "inventory", "number of jobs", and "jobs retained". (Client "satisfaction" and "other impacts" can also enter the picture, albeit tangentially). It is this impact spectrum which this paper suggests needs to be broadened to take account of the diverse impacts of non-traditional service approaches, and to be able to calculate the increasingly relevant "taxpayer-payback" to manufacturing extension services.

With regards to *diverse impacts*, Table 1 shows the program features of WMEP and their possible outcomes. Many of these might not be directly counted in the present six NIST "impact totals", under the assumption that they must eventually appear in the "bottom-line" impacts. Others may be counted, but might not show up as positive numbers, even though they contribute to the enterprise's continuity and modernization. For example, comprehensive assessments and facilitated strategic planning may recommend upgraded technology, requiring more highly-trained workers at higher wages: client labor costs may therefore be legitimately increased in the short-term, even though the manufacturing modernization level has been uplifted and the client's problem-solving capability has been

enhanced. Strategic business plans or marketing advice may not reduce assembly-line costs (like materials, labor and inventory), but may nevertheless help significantly reduce administrative, overhead, and research costs. New product development assistance (which NIST's own data show has the largest client impact payoff of any center service), may take much longer than the six month period before the follow-up survey, to translate into new sales. ISO-9000 assistance may not increase any sales, but may instead allow the company to qualify for a pool of eligible contractors or to retain an existing customer. A merely constant level of sales may itself be a significant achievement given a shrinking market or competition from import penetration. Environmental management and ISO-14000 assistance may increase operating costs, through adding processes to deal with hitherto untreated waste, by substituting more expensive non-toxic materials for cheaper toxic ones, by requiring more training in hazardous procedures, and by installing more procedures for regulatory compliance: however, in one of the most environmentally-conscious states in the country, such expenditure may save the company fines, legal fees, site clean-up costs, land devaluation, or literally being put out of business altogether. It may also give the client a future competitive edge against manufacturers elsewhere who meet regulations later. Labor-management relations services may also not increase sales, but may reduce absenteeism, reduce the need for new hiring, improve employee satisfaction, and allow fuller exploitation of new technology in a high performance work environment. Finally, Wisconsin's own follow-up surveys of clients served with state funds record several instances of the CEO attesting "we wouldn't even be in business today if it had not been for the assistance we received", and yet this would

Table 1. WMEP Program Features Suggesting an Expanded Focus to Evaluation	
WMEP PROGRAM FEATURE	OUTCOMES NOT PRESENTLY IN NIST'S SIX "IMPACT" TOTALS
<p>Value Added Manufacturing (VAM) & Comprehensive Assessments: examination of whole enterprise & assisting with a step up to the next level of manufacturing modernization; facilitated strategic planning;</p>	<p>changes in corporate culture; development of characteristics of next relevant modernization stage; reduced overhead (operations) and administrative (front office) costs; reduced lead time, scrap and rework rates; reduced costs of quality programs;</p>
<p>Additional agent specialities:</p> <p>Environmentally-conscious manufacturing: front-end non-hazardous substitution; P2; regulatory assistance; ISO-14000; environmental management systems;</p> <p>Labor-management relations: best practices; EIPs; retention & reward strategies; negotiated out-sourcing;</p> <p>Market research: product refinement; new product development;</p>	<p>process & material changes; waste reduction; implementation of ISO-remediation, fines & legal fees avoidance; regulatory compliance; property re-sale value maintenance</p> <p>conflict incidence reduction; employee satisfaction; presence of best practices; features of HPWOs installed; reduced research costs;</p> <p>shortened product development cycles; shortened time to market; increased market share; better product decision-making; lower sales costs; long term sales increase;</p>
<p>Institutional transformation: refocusing resources; awareness of SMM issues; seamless delivery; timeliness; responsiveness; charging fees; development of private sector providers;</p>	<p>cash, personnel, equipment matched; WMEP accessed as info/service hub;</p> <p>customer satisfaction; joint planning;</p> <p>program revenue raised; more in rural and small urban areas; more use of existing in urban areas;</p>

Source: WMEP Planning & Operations Team, 9/96.

presently be recorded only under "other" with the NIST questionnaire.

With regards to *taxpayer-payback*, it has to be recognized that each center also has to scramble for future in-state funding within its own local political economy of budgeting. This in-state resource requirement amounts to half of the total center budget in the first three years of operation, and rises to all of it by program year seven. In the Wisconsin case, the state budget environment is characterized by a lack of the "spare cash" which would give room for imaginative responses to new programs like WMEP. Instead, "revenue neutrality", "compensatory shifting", "budget balance", and "fiscal clawback possibility", are emerging as the metrics of choice in state budget rhetoric. The "private benefit to public cost" ratio which NIST demonstrates to be so favorable, instead needs both numerator and denominator calculated in the same -- public -- realm, as opposed to public *and* private realms, as NIST conceives it.

Consequently, it is the extension of the NIST evaluation logic shown in Fig. 1, which is becoming the important question for WMEP: ***can it be demonstrated empirically that there is a positive return directly to the taxpayer from spending manufacturing extension dollars to achieve those bottom line impacts for the client?*** This aspect appears to have been studied systematically only twice before. Shapira and Youtie at Georgia Tech have looked at the Georgia center's return on investment, and found an additional \$1.50 to \$1.90 of tax revenue per public dollar invested.⁴ Oldsman and Nexus Associates have studied the New York MEP and found that for every dollar spent on the program between 1992 and 1994, between 14 and 51 cents

⁴See *NIST Program Review*, Fall 1996 Center Directors meeting, Warrenton, VA, page 8-4; Shapira, Philip and Jan Youtie, *Assessing GMEA's Impacts: Towards a Benefit-Cost Methodology*, March 1995 (revised April 1995), Georgia Institute of Technology, Atlanta, Georgia.

was returned to the New York treasury during the same period.⁵

The Political Budgeting Reality: What's the Taxpayer-Payback?

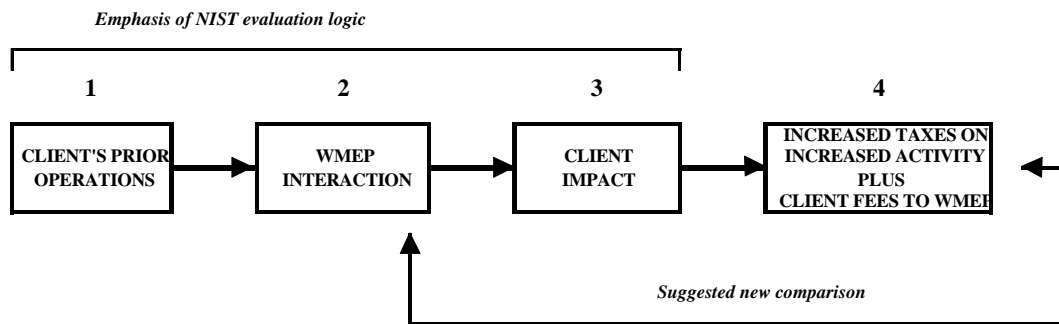
During the coming six months, WMEP will have to prepare submissions for its next round of funding for 1997 and beyond. The background environment for this in-state is not encouraging. Wisconsin's previous biennial budget (1995-97) had cut state agency spending by an average of 5%. Of WMEP's three main state agency first-year resource-providers -- the Wisconsin Technical College System (WTCS), the Wisconsin Department of Commerce, and the University of Wisconsin System (UWEX) -- two had budget cuts of over 10% each in 1995, making it difficult to cut back their own staff and yet continue to fund "outside" programs. To their credit, their heads have so far stuck with their evolutionary commitments, but prudence suggests that a biennium is a long time in state budget politics.

The next biennial budget (1997-99) is projected to be \$1.19 billion in total, but the most extreme scenario projected by the Wisconsin Dept. of Revenue leaves the state \$387 million short.⁶ On the spending side, a school financing/property tax reform means the state is now obliged to fund two-thirds of elementary and

⁵See *Evaluation of the New York Manufacturing Extension Program: Final Report*, prepared for the New York Science and Technology Foundation/Empire State Development, Gen #95037, March 18, 1996, by Nexus Associates, Inc., Belmont, MA.

⁶See "Huge state budget gap is forecast", *The Capital Times*, Madison, WI, Thursday September 19, 1996, p1. This summarizes a non-partisan Wisconsin Legislative Fiscal Bureau study. It should be noted that the state's Republican leadership is not so pessimistic.

Fig. 1. Extending the Evaluation Logic Into Taxpayer-Payback



Rationale:

If value of 4 < costs of 2, WMEP is an "expenditure", and is in the political competition for budget share against other lobbies & programs

If value of 4 > or = cost of 2, WMEP is an "investment", allowing a more rational economic defense

secondary education, requiring \$258 million. It also has to fund new staff for already-approved prisons whose inmate population is expected to grow by over 50% by 1999. Another \$202 million could be necessary if the state loses two pending court cases to do with alleged pension fund raiding and state engineer overtime pay, and if it fails to get federal Medicaid waivers as part of its W-2 welfare reform. The state assembly Republican campaign plan also calls for reducing personal income taxes by about \$130 million. In sum, it is a reasonable bet there will be little "spare cash" in 1997 and beyond. What resources there are on the table in the capitol will likely go to more sexy capital projects -- like a new Brewers Stadium, or a light rail system in Milwaukee, or new prisons -- which have more electoral appeal than manufacturing extension. State unemployment, meanwhile, is 3.9% and falling, and is only 1.9% in the county where most state legislators live. Crisis-reacting politicians are thus more pre-occupied with welfare, education, and transportation issues, than they are with small manufacturing, which they perceive just "ain't broke" and has no powerful lobbies screaming for government to step in. When manufacturers *do* complain about shortages of skilled labor, the more likely state government response would be to route further funding towards basic and technical education, which has the political appeal of allowing legislators from the different parties to serve both social and business interests at the same time.

Rather than being pessimistic about the potential handout in such an environment, however, WMEP has realized its future can come only from its own hands. Its adopted strategy is to work hard at demonstrating program effectiveness, in the senses of: (1) serving clients with value-added services, for which rational profit-maximizing manufacturers should be willing to pay fees which can be raised over time; (2) recruiting satisfied clients to act as champions for state funding requests with their own local legislators; and (3) demonstrating, through taxpayer-payback, that WMEP is an

"investment", and not an "expenditure": this distinction is important, because it would shift the realm in which WMEP has to compete for funds away from the *political* -- where it has weak appeal compared to that of more organized constituencies -- to the *economic*, where it is on much stronger rational grounds than almost any other "government program".

Putting together such a demonstration of tangible taxpayer-payback analytically for state stake-holders would include reviewing what taxes manufacturers pay and estimating how these would be affected by the impacts resulting from manufacturing extension services. How the resulting tax yield increment compares with the cost of providing those services and the fees charged, can then be examined for any variation between industries and between types of extension project. The results may then also have implications for tailoring service mix and client selection.

What Taxes Do Manufacturers Pay?

Table 2 shows the taxes imposed on corporations (including services enterprises) in Wisconsin. These taxes include corporation, property, and sales taxes, along with a nominal franchise fee which is counted as a tax, and unemployment compensation (which actually goes to a self-contained fund and is thus not treated here, although it is often perceived as a tax by manufacturers). The significant provisions which govern how and on what these taxes bite vary tremendously by state, but Wisconsin's overall corporate burden, in common with that of many other states, is raised mostly through the property tax, which accounts for over half of all the corporate taxes paid. Corporate income tax yields about a quarter, and sales tax accounts for about 17% of the total corporate burden. Table 3 narrows the focus to just manufacturers, and shows their 1994 Wisconsin corporate income

**Table 2. Provisions of Different Corporate Taxes in Wisconsin,
and Share of Total Corporate Burden**

TAX	PROVISION IN WISCONSIN	SHARE OF TOTAL CORPORATE TAX BURDEN (1992) (hypothetical corps.)	
		19 states (%)	WI (%)
CORPORATE INCOME	<ul style="list-style-type: none"> - 3-factor apportionment - effective top rate = 7.90% - uses Fed Inc as basis for state tax - federal tax not deductible - 15 year NOL carryover - research credits - no investment credit or jobs credit - Subchapter S corporate treatment - enterprise zones 	25	20
FRANCHISE	<ul style="list-style-type: none"> - minimal annual filing fee only 	4	1
PROPERTY	<ul style="list-style-type: none"> - real property average tax rate = \$33.91 - intangibles and inventories exempt - manufacturing machinery, equipment, & vehicles exempt - personal property not exempt 	54	57
SALES	<ul style="list-style-type: none"> - 5% state rate - 0.5% median local rate - manufacturing machinery & equipment exempt - manufacturing fuel & electricity not exempt 	17	23
UNEMPLOYMENT COMPENSATION	<ul style="list-style-type: none"> - 0.02-9.75% range of rates by industry - "reserve ratio" type of experience rating 	*	*

* usually kept in separate account from state GPR

Source: adapted from Wisconsin Dept. of Revenue (1995) "Corporate Tax
Climate: A Comparison of 19 States", Madison WI.

**Table 3. 1994 Tax Liability of Wisconsin Manufacturing Corporations,
by 2-digit SIC Code (ranked by Average Tax Per Liable Corporation)**

SIC	INDUSTRY	CORPORATIONS			CORPORATE TAX LIABILITY **		
		TOTAL	WITH LIABILITY		NET TAX		AVERAGE
			(no.)	(no.)	(%)	(\$)	
21	Tobacco	10	9	90.0	3,201,716	0.6	355,746
26 *	Paper	223	61	27.4	11,819,241	2.3	193,758
37	Transportation equipment	217	62	28.6	10,701,078	2.0	172,598
20 *	Food	898	276	30.7	27,451,215	5.2	99,461
36	Electric machinery	634	234	36.9	21,446,319	4.1	91,651
28	Chemicals	404	145	35.9	11,358,673	2.2	78,336
27 *	Printing	1,255	336	26.8	17,125,332	3.3	50,968
39	Other manufacturing	1,169	344	29.4	16,808,450	3.2	48,862
33	Primary metals	205	50	24.4	2,299,561	0.4	45,991
29	Petroleum	58	16	27.6	731,763	0.1	45,735
35 *	Machinery	1,253	406	32.4	18,457,308	3.5	45,461
32	Stone, clay & glass	327	107	32.7	4,549,130	0.9	42,515
30 *	Rubber	542	153	28.2	6,292,939	1.2	41,130
22	Textile	50	20	40.0	820,707	0.2	41,035
34 *	Fabricated metals	1,758	625	35.6	23,916,308	4.6	38,266
25	Furniture	275	67	24.4	2,357,185	0.4	35,182
23	Apparel	162	42	25.9	1,316,870	0.3	31,354
38 *	Scientific instruments	280	93	33.2	2,813,998	0.5	30,258
31	Leather	64	32	50.0	853,011	0.2	26,657
24	Lumber	631	203	32.2	4,740,467	0.9	23,352
20-39	Manufacturing sub-total	10,415	3,281	31.5	189,061,271	36.0	57,623
	All industries total	92,985	25,167	27.1	525,282,423	100.0	20,872
	Manf. share of all inds (%):	11.2	13.0		36.0		276.1

* SIC included in hypothetical corporation calculations in later Tables

** for Wisconsin corporate income/franchise tax only

Source: adapted from Wisconsin Dept. of Revenue, "1994 Corporate Aggregate Statistics", (unpublished data from Dennis Collier, Division of Research & Analysis, P.O. Box 8933, Madison WI 53708, 8/23/97)

tax liability, by 20 two-digit SIC codes. Wisconsin has over 10,000 manufacturers of all sizes but, notably, less than a third of them pay any corporate income tax at all. Those that do, pay on average over \$57,000 per corporation, which is almost 2.8 times the average per liable corporation for all industries. Within manufacturing, this figure varies markedly by SIC code, from only \$23,000 per liable corporation in SIC 24 (lumber), to over \$350,000 in SIC 21 (tobacco), although this industry is an extreme. Tobacco, paper, and transportation equipment, are the only three codes out of 20 with over \$100,000 of corporate income tax paid per liable company. The median liability is \$47,500, and the average for Wisconsin's largest code -- SIC 34 (fabricated metals) -- is about \$38,300.

How Do Manufacturing Extension Activities Impact Tax Liability?

Manufacturing extension services improve the competitiveness and profitability of small and medium-sized manufacturers. To estimate how extension projects change client tax liabilities would require knowing the prior financial characteristics of the client company, then postulating how manufacturing extension-induced changes in operations show up in changes to these financials, and then estimating how these changes in the financials generate new tax liabilities. In an ideal evaluation system this could be done with real balance sheet data on an individual client company's finances and a complete record of the extension-generated changes in that client. For this study, however, both aspects have to be estimated.

The Wisconsin Department of Revenue (WDoR) periodically makes comparisons of the state's tax structure and rates with those of 18

other states.⁷ It employs the "hypothetical corporation" approach, using actual corporate income tax return data to establish financial statements and balance sheets for "average", mid-sized, established, corporations in seven different manufacturing industries. These industries represent 67% of all manufacturing employment in the state and are identified in Table 3. The WDoR then assumes uniformity in the corporation structure and non-tax costs, applies tax codes of the different comparison states, and tracks the resulting tax burdens on the seven corporations.

The WDoR's hypothetical corporation data can be used here for taxpayer-payback modeling of first-round changes in tax revenue as a result of manufacturing extension interaction with MEP. This can be done by changing the relevant financial parameters in the "income statement" section of the corporation's basic balance sheet -- such as gross sales, profits, property, and income, as shown in Table 4 -- in the way that would be done by extension-induced changes to operations. The resulting balance sheet changes are then assumed to feed through to tax liability changes by the action of a "liability multiplier". This multiplier is simply the actual relation between the financial indicator value and associated tax liability, for each different tax and corporation. For example, hypothetical corporation #3 in the SIC 35 "machinery products" industry reports \$756,690 of income before taxes in Table 4. Its corporate income tax liability was assessed in Wisconsin as \$28,028, meaning that its Wisconsin corporation income tax liability multiplier was 28,029/756,690, or 0.037. That is, for every \$1 of "income before taxes", this corporation paid

⁷ See Wisconsin Dept. of Revenue (1995) *Corporate Tax Climate: A Comparison of Nineteen States*, Division of Research and Analysis, P.O. Box 8933, Madison, WI 53708. The 1995 study compares WI and: IL, IN, IA, MI, MN, CA, MA, NY, OH, AL, AZ, CO, GA, LA, MS, NC, TN, and TX.

Table 4. Income Statements From Balance Sheets of Seven Hypothetical Wisconsin Manufacturing Corporations

HYPOTHETICAL CORPORATION			"INCOME STATEMENT" SECTION OF BASIC BALANCE SHEET *							
(#)	SIC CODE	TYPE**	columns:	(a)	(b)	(c)	(d)	(e)	(f)	(g)
				SALES (\$)	COST OF GOODS SOLD (\$)	(INCL. FUEL & ELEC) (\$)	GROSS PROFIT (\$)	OTHER RECEIPTS (\$)	GENERAL EXPENSES (\$)	INCOME BEFORE TAXES (\$)
1	26	Paper products		31,945,465	24,210,465	774,829	7,735,000	392,778	7,475,400	652,378
2	34	Fabricated metals		26,140,973	19,456,069	365,831	6,684,904	527,232	6,347,611	864,525
3	35	Machinery products		22,250,021	15,385,408	123,898	6,864,613	610,554	6,718,477	756,690
4	38	Scientific instruments		20,775,760	11,802,421	100,575	8,973,339	435,595	8,423,397	985,537
5	20	Food products		44,984,821	35,652,566	441,853	9,332,255	505,586	8,860,727	977,114
6	27	Printer-publisher		25,457,506	15,564,321	277,348	9,893,185	574,252	9,560,784	906,653
7	30	Plastics products		15,109,000	11,320,000	280,000	3,789,000	214,000	3,247,550	755,450
		TOTAL		186,663,546	133,391,250	2,364,334	53,272,296	3,259,997	50,633,946	5,898,347
		AVERAGE		26,666,221	19,055,893	337,762	7,610,328	465,714	7,233,421	842,621
		RANGE		29,875,821	24,332,566	674,254	6,104,185	396,554	6,313,234	324,736

Notes:

columns (a) - (b) = (d)

columns (d) + (e) - (f) = (g)

* Balance sheet data based on actual averages for mid-sized, established firms, within each of the seven industries, for tax year 1990.

** WDoR nomenclature

Source: adapted from Wisconsin Dept. of Revenue (1995) "Corporate Tax Climate: A Comparison of 19 States", Madison WI.

3.7 cents in Wisconsin corporate income tax. Analogous calculations can also be done for sales tax, property tax, and total tax, using the relevant base for each. The results for all seven corporations are shown in Table 5.

These liability multipliers can be applied to increases in client sales, property, income, and profits, respectively, assuming they follow from the kinds of manufacturing operations changes generated by typical extension projects. The three extension scenarios modeled here are:

- a manufacturing assessment and follow-on implementation of recommendations, with case-management by an extension agent, resulting in an increase of 6% in the client's gross profit (an actual outcome in a recent WMEP case⁸); this is assumed to increase the client's total tax liability as shown in Table 6;
- new product development and marketing assistance provided by the Wisconsin Technology Assistance Program (WMEP's statewide partner program), leading to a 15% increase in the client's sales; this is assumed to increase the client's sales tax collected, with results shown in Table 7;

and

- a manufacturing assessment and follow-on implementation of recommendations, with case-management by an extension agent, leading to a 15% reduction in plant and equipment (through reductions in inventory needs, a shift to cellular manufacturing and just-in-time, and

reductions in space); this is assumed to feed through to changes in property taxes, with the results shown in Table 8.

These are just three relatively simple extension project scenarios, but can be used to explore the taxpayer-payback issue (so long as some important assumptions, addressed later are allowed for). The tax changes that result in each case can be compared with the cost of extension services which generated the changes in operations and the fees charged by the center to the client. This calculation uses the actual WMEP service costs and fees of \$4,000 per assessment and \$75 per hour of agent time after the first 8 hours of case management assistance. The ratio of estimated tax increase plus fees, to costs of services, is then the "taxpayer-payback" ratio shown in the two final (**bolded**) columns of Tables 6, 7, and 8. These two columns reflect: payback for the total (state plus federal) taxpayer cost, and payback for the state taxpayer (who is only paying half the cost of providing services as long as NIST is contributing 50% of total service costs).

⁸See "WMEP Helps Dadson Increase Profits 6%", *WMEP Northeast Newsletter*, v1(1), p1, August 1996.

Table 5. "Liability Multipliers" For Different Tax Types in Seven Hypothetical Manufacturing Corporations

HYPOTHETICAL CORPORATION			SALES TAX			PROPERTY TAX			INCOME TAX			TOTAL TAX LIABILITY		
			GROSS SALES (\$)	TAX LIABILITY (\$)	LIABILITY MULTIPLIER *	TOTAL PLANT & EQUIPMT (\$)	TAX LIABILITY (\$)	LIABILITY MULTIPLIER *	INCOME BEFORE TAXES*** (\$)	TAX LIABILITY (\$)	LIABILITY MULTIPLIER *	GROSS PROFIT *** (\$)	TOTAL TAX LIABILITY (\$)	LIABILITY MULTIPLIER *
(#)	SIC CODE	TYPE												
1	26	Paper products	31,945,465	48,918	0.0015	6,473,600	52,938	0.0082	652,378	0	0.0000	7,735,000	101,881	0.0132
2	34	Fabricated metals	26,140,973	24,256	0.0009	4,688,192	62,459	0.0133	864,525	18,774	0.0217	6,684,904	105,514	0.0158
3	35	Machinery products	22,250,021	12,061	0.0005	3,457,032	47,845	0.0138	756,690	28,028	0.0370	6,864,613	87,959	0.0128
4	38	Scientific instruments	20,775,760	11,348	0.0005	2,817,165	48,417	0.0172	985,537	40,762	0.0414	8,973,339	100,552	0.0112
5	20	Food products	44,984,821	31,686	0.0007	5,382,299	98,414	0.0183	977,114	18,053	0.0185	9,332,255	148,178	0.0159
6	27	Printer-publisher	25,457,506	20,447	0.0008	5,184,798	78,262	0.0151	906,653	25,147	0.0277	9,893,185	123,881	0.0125
7	30	Plastics products	15,109,000	18,481	0.0012	2,259,000	36,416	0.0161	755,450	19,631	0.0260	3,789,000	74,553	0.0197
TOTAL			186,663,546	167,197	0.0009	30,262,086	424,751	0.0140	5,898,347	150,395	0.0255	53,272,296	742,518	0.0139
AVERAGE			26,666,221	23,885	0.0009	4,323,155	60,679	0.0140	842,621	21,485	0.0255	7,610,328	106,074	0.0139
RANGE			29,875,821	37,570	0.0010	4,214,600	61,998	0.0101	333,159	40,762	0.0414	6,104,185	73,625	0.0085

* "Liability Multiplier" = dollars of tax liability associated with each dollar of gross value of the subject of that tax

** "Income before taxes" equals "gross profit" plus "other receipts" minus "general expenses", from the income statement

*** "Gross profit" equals "sales" minus "cost of goods sold"

Source: author's calculations using data from Wisconsin Dept. of Revenue (1995) "Corporate Tax Climate: A Comparison of Nineteen States", Madison, WI.

****Assuming:** 12 hrs case mgmt @ \$ 75 per hour agent time (8 hrs free)
50 % of total project cost borne by State taxpayer
50 % of total project cost borne by Federal government

*Source: author's calculations using data from Wisconsin Dept. of Revenue (1995) "Corporate Tax Climate: A Comparison of Nineteen States",
Madison, WI.*

Table 7. Taxpayer Payback From Increasing Client's Sales by 15%

HYPOTHETICAL CORPORATION			ORIGINAL GROSS SALES	POST-EXTENSION SERVICES SALES	SALES INCREMENT	SALES TAX INCREMENT	EXTENSION SERVICES COST*	FEES FOR EXTENSION SERVICES	BALANCE (TAX +FEES -COST)	TAXPAYER PAYBACK	
(#)	SIC CODE	TYPE	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	PER \$1 TOTAL COST	PER \$1 STATE COST**
1	26	Paper products	31,945,465	36,737,285	4,791,820	7,338	2,625	2,000	6,713	3.56	7.11
2	34	Fabricated metals	26,140,973	30,062,119	3,921,146	3,638	2,625	2,000	3,013	2.15	4.30
3	35	Machinery products	22,250,021	25,587,524	3,337,503	1,809	2,625	2,000	1,184	1.45	2.90
4	38	Scientific instruments	20,775,760	23,892,124	3,116,364	1,702	2,625	2,000	1,077	1.41	2.82
5	20	Food products	44,984,821	51,732,544	6,747,723	4,753	2,625	2,000	4,128	2.57	5.15
6	27	Printer-publisher	25,457,506	29,276,132	3,818,626	3,067	2,625	2,000	2,442	1.93	3.86
7	30	Plastics products	15,109,000	17,375,350	2,266,350	2,772	2,625	2,000	2,147	1.82	3.64
TOTAL			186,663,546	214,663,078	27,999,532	25,080	18,375	14,000	20,705	2.13	4.25
AVERAGE			26,666,221	30,666,154	3,999,933	3,583	2,625	2,000	2,958	2.13	4.25
RANGE			29,875,821	34,357,194	4,481,373	5,636	0	0	5,636	2.11	4.29

* Calculated from: 5 hours tech. asst. from WisTAP @ \$ 0 per hr
and: 30 hrs case mgmt time @ \$ 75 per hr (first 8 hrs free)
for a fee of: \$ 1,650
and: \$ 350 WisTAP fee for database/Xplit search
**Assuming: 50 % of total project cost borne by State taxpayer

Source: author's calculations using data from Wisconsin Dept. of Revenue (1995) "Corporate Tax Climate: A Comparison of Nineteen States", Madison, WI.

**Table 8. Taxpayer Payback From Reducing Client's Plant
& Equipment By 15%**

HYPOTHETICAL CORPORATION			ORIGINAL TOTAL PLANT & EQUIPMT	POST-EXTENSION SERVICES PLANT & EQUIPMT	NET PLANT & EQUIPMT REDUC-TION	PROP-ERTY TAX REDUC-TION	EXTEN-SION SER-VICES COST*	FEE- FOR EXTEN-SION SER-VICES	BAL-ANCE (TAX +FEES -COST)	TAXPAYER PAYBACK	
			(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	PER \$1 TOTAL COST	PER \$1 STATE COST**
(#)	SIC CODE	TYPE									
1	26	Paper products	6,473,600	5,502,560	-971,040	-7,941	10,650	4,300	-14,291	-0.34	-0.68
2	34	Fabricated metals	4,688,192	3,984,963	-703,229	-9,369	10,650	4,300	-15,719	-0.48	-0.95
3	35	Machinery products	3,457,032	2,938,477	-518,555	-7,177	10,650	4,300	-13,527	-0.27	-0.54
4	38	Scientific instruments	2,817,165	2,394,590	-422,575	-7,263	10,650	4,300	-13,613	-0.28	-0.56
5	20	Food products	5,382,299	4,574,954	-807,345	-14,762	10,650	4,300	-21,112	-0.98	-1.96
6	27	Printer-publisher	5,184,798	4,407,078	-777,720	-11,739	10,650	4,300	-18,089	-0.70	-1.40
7	30	Plastics products	2,259,000	1,920,150	-338,850	-5,462	10,650	4,300	-11,812	-0.11	-0.22
TOTAL			30,262,086	25,722,773	-4,539,313	-63,713	74,550	30,100	-108,163	-0.45	-0.90
AVERAGE			4,323,155	3,674,682	-648,473	-9,102	10,650	4,300	-15,452	-0.45	-0.90
RANGE			4,214,600	3,582,410	-632,190	9,300	0	0	9,300	-0.87	-1.75

* Calculated from: 130 hour assessment @ \$ 75 per hour engineer time
less: \$ 4,000 fee for assessment & \$ 300 fee for
12 hrs case mgmt @ \$ 75 per hour agent time (8 hrs free)

**Assuming:
50 % of total project cost borne by State taxpayer
50 % of total project cost borne by Federal government

Source: author's calculations using data from Wisconsin Dept. of Revenue (1995) "Corporate Tax Climate: A Comparison of Nineteen States", Madison, WI.

Results

Initial gross profits in these seven hypothetical corporations varies from \$3.7 million in the case of plastics products, to \$9.8 million in the case of scientific instruments (see Table 5). Consequently, their resulting total tax liabilities also vary by industry (from \$75,500 to \$148,100), as do their total tax liability multipliers (from 0.0197 to 0.0112). However, there is a greater variation between liability multipliers on the basis of individual tax type, than there is by SIC code: the seven-corporation liability multiplier for sales tax is only 0.0009, compared to 0.014 for property tax and 0.0255 for income tax. This suggests that the type of extension project and the tax it impacts, may have more influence on payback than the type of manufacturing industry the client is in.

Increasing *gross profit* by 6% in each of seven corporations in Table 6 impacts their total tax liability by, on average, \$6,364 per corporation, with an individual corporation range from \$4,473 to \$8,891. As this change is the result of a 130-hour assessment at \$75 per hour with 12 hours of follow-on case management at \$75 per hour after the first 8 hours, the service cost is \$10,650 and each corporation pays a total fee of \$4,300. The increased tax plus the fee then come back to the taxpayer after bearing the cost of the services provided. This means that with corporation #3 (machinery products), for example, the taxpayer bears a net loss of \$1,072, since the cost of providing the services is greater than the tax increase and the fees combined. Corporation #5 (food products), however, generates an extra \$8,891 in taxes, leaving the taxpayer with a net profit of \$2,541. For this corporation, the ratio of returns to costs, when extension services increase profits by 6%, is 1.24:1 overall and 2.48:1 for the Wisconsin taxpayer.

Increasing *sales* by 15% for each corporation generates positive payback in all seven industries, with the average net profit for the taxpayer being \$2,958 per corporation, and the overall seven-firm payback ratio being 2.13:1. The range of taxpayer-payback ratios by industry here is from a low of 1.41:1 (with scientific instruments) up to 3.56:1 (for paper products). This last result is also the most favorable payback for any industry and for any of the three extension project scenarios.

Reducing the client's *plant and equipment*, by contrast, has a less than even payback for all seven corporations, because the reduction in plant and equipment (assuming the client could also shed its property tax liability on now-unused capacity) means a reduction in property taxes. The taxpayer is thus not only paying for the extension services, but also losing, rather than generating, tax revenue as an outcome of those services. The average net loss to the taxpayer per corporation is \$15,432, and the overall taxpayer-payback for all six corporations in this scenario is -0.45:1.

Caveats and Assumptions for this Analysis

The analysis in this paper is deliberately exploratory, to suggest a direction for further inquiry rather than to provide definitive answers. As such, there are several limitations and caveats which must be borne in mind when weighing these "results":

- the purpose has been to show the taxpayer-payback from center-client interactions funded with taxpayer dollars, and not to suggest that the prime reason for interacting with such firms is to raise their tax liability!
- these are simple arithmetic calculations representing the narrow, partial, "first

moment" view of change; they do not include:

- tax changes in other sectors of the economy associated with purchases of inputs to the modeled activity (as could be calculated through use of the U.S. Dept. of Commerce's national input-output table, for example);
- multi-year gains
- structural changes to behaviors, relations, thresholds, and system integrity, in other parts of the system, from changes in the chosen variables;
- tax gains derived from additional salaries of additional employees, or tax losses from reduced workers;
- the analysis ignores the opportunity cost of where else the tax dollars could have been invested for what return, and assumes taxes, fees, and services costs are reconciled at the same time with no interest payments on either side;
- company "types" are only distinguished by 2-digit SIC code, and not by other functional dimensions of the enterprise, such as size, position in production chain, level of sophistication, union status, etc.;
- sales tax is accounted for by the firm making the sale, collecting the tax, and remitting it to the government, and not by the customer-payer;
- firms receiving plant layout services which result in a reduction of floorspace are assumed to shed the excess physical space and its tax liability; this space is assumed to

remain vacant and off the property tax rolls in the short-term;

- the tax data framework adopted from the WDoR study is only loosely related to the manufacturers' operational and MIS data framework used in extension practice: changes in operations associated with manufacturing extension interactions can only in a few narrow instances be translated directly into changes in taxes;
- all changes to company financials are assumed directly attributable to manufacturing extension assistance, thereby ignoring industry-wide and economy-wide trends, assistance from other sources (such as private consultants, internal management, etc.), and the results of each extension project are assumed to impact only one tax type at a time;
- financial contributions by the client towards the extension service cost (including private consultants' implementation fees, but excluding fees charged by the center) are ignored, and are assumed not tax-deductible;
- the analysis assumes simple linear bivariate relationships between key financials and levels of tax liability, and ignores any thresholds, stickiness, and changes in strategic tax avoidance practices (i.e. all activity increment is taxed at marginal rate, and none is exempt);
- the hypothetical company balance sheet data is derived from actual averages in mid-sized established firms; real levels in small and medium-sized manufacturers only may be slightly different;
- numerical results are particular to the tax provisions and climate in Wisconsin, where

the following features are distinctive from the point of view of the manufacturer:

- no payroll tax
- no significant franchise tax
- manufacturing machinery, equipment, vehicles, and inventories are exempt from local property tax
- only just under a third of Wisconsin corporations pay any corporate income tax;

and thus, to the extent that other states depart from these conditions, their numerical outcomes may also be different;

- payback to Wisconsin taxpayers assumes Wisconsin residents' federal taxes do not appear again in the federal funding of WMEP activity.

Conclusions

This study attempts to model the taxpayer-payback from different types of manufacturing extension project. It has shown this can be done analytically using hypothetical but realistic corporation financial data, combined with field-credible scenarios about extension impacts, and actual program service costs and fee levels. At present, it is a rough arithmetic exercise in scenario modeling, but it still yields some results which prompt further thought about the kinds of impact manufacturing extension is having, and about how centers may want to take that into account when planning their mix of services and selecting their clients. The analysis also signals how centers might have their requests for future funding strengthened by collecting and analyzing "before-and-after" client financial balance sheet data, along with regular operating data, in the NIST follow-up surveys. These data would then make this kind of

taxpayer-payback evaluation possible for real clients.

With the particular data and assumptions used here, manufacturing extension can be shown to have a positive taxpayer-payback. From the total tax point of view, payback can reach as high as \$3.56 of public returns (in taxes and fees) per \$1 of public cost, or \$7.11 per \$1 from the point of view of the state taxpayer who receives a federal subsidy. However, there is considerable variation in payback ratios by industry and by service type.

Of the three types of manufacturing extension project scenario outcomes -- increasing profits by 6%, increasing sales by 15%, and reducing plant and equipment by 15% -- the scenario with increasing *sales* shows the greatest taxpayer-payback. On average for seven corporations it shows a \$2.13 return per \$1 of total public investment, and can be as high as \$3.56 for individual situations. This suggests that extension services which work on sales-related aspects of the client's business -- such as new product development, product refinement, and sales and marketing assistance -- may be the most effective. However, this type of project also has the greatest inter-industry range of payback ratios, indicating it is maybe also a more uncertain link. Even so, the payback when sales are impacted is higher than in the scenario where *profits* are impacted, for all seven corporations. Increasing profits generates lower ratios tending more towards payback neutrality: these range from 0.82:1 to 1.24:1, and are less than even (1.0:1.0) for four of the seven corporations. This could just be due to the fact that the percentage change in the two scenarios was set lower for profits (6%) than it was for sales (15%), or that profit and corporate income tax liability is a more manipulable outcome for later tax purposes by corporations than is sales.

Extension services resulting in less *plant and equipment* have negative taxpayer-payback in the third scenario, since the client's operating efficiency gains can reduce the taxbase for property tax. Since it is the property tax which

provides the majority of the total corporate tax burden, this is perhaps a disturbing outcome for manufacturing extension. Nevertheless, it does highlight how payback effects can be complex and perverse, and shows the importance of not using extension services to downsize clients for the sake of it, but rather to use the opportunity provided by operational assessments freeing up capacity to increase activity within the same plant. This, in turn, implies that extension projects which have a comprehensive approach to working on all facets of the client's business -- benchmarking for more efficient operational use of plant while at the same time working on increasing sales to take advantage of new spare capacity, for example -- rather than partial approaches resulting in quick fixes in one area, may help avoid perverse outcomes and greatly multiply extension's effectiveness.

The individual corporations in different industries which show relatively high taxpayer-payback when their gross profits are increased through extension activity (Table 6), are generally also in industries which have a relatively large liability for corporate income tax to begin with (in Table 3). This applies to food and printing-publishing. However, since the modeling was only possible on corporations in the WDoR's chosen seven out of the 20 manufacturing SIC codes, more work would be necessary before this could be recommended as a rule of thumb for extension client targeting.

Closer examination of the numbers also shows that the change in the relevant tax collected as a result of extension services is *not* the biggest component of the calculation for taxpayer-payback. Using three scenarios for seven corporations, costs in these 21 situations average about \$7,900 and fees average about \$3,500, while tax increments (where the outcome was positive) average only about \$4,900. Thus, the cost of providing services and the fees charged by the center together generally have a greater impact on the size of the taxpayer-payback ratios than do the tax increases themselves. This could be an encouraging result,

because it implies taxpayer-payback is somewhat under the center's control through its choices of costs and fees, rather than being totally at the mercy of the tax system. However, it also highlights the importance of accurate knowledge of their true service costs by centers (which can be difficult in multi-institutional partnerships with substantial in-kind cost-share), and of charging realistic and substantial fees, if positive taxpayer-payback is to be consistently demonstrated.

Similarly, the difference in levels of taxpayer-payback against total (federal and state) taxpayer cost versus state taxpayer cost, highlights that, were it not for the federal subsidy through NIST, payback from four out of the seven corporations who have their profits increased by 6% in the second scenario would still be less than even from the state taxpayer's point of view. This underlines the importance of continued federal subsidy, if state extension services are to demonstrate positive taxpayer-payback to their in-state funding sources.

Finally, individual ratios estimated here are generally in the range from 0.9:1.0 to 3.5:1.0. This is greater than the New York estimates of 0.14:1.0 to 0.51:1.0, and in line with, but showing a greater spread than, the Georgia analysis figures of \$1.50 to \$1.90. It is still much less than the \$8.00 figure which NIST quotes to be the client's impact for each dollar of federal investment. This highlights the importance of broadening this kind of taxpayer-payback analysis further, to include income taxes from additional employees, taxes on later rounds of spending, and other related economic development impacts.



What do We Expect from the Evaluation of Industrial Modernization: Discussion

Shapira. It seems that three arguments for extension have been proposed: first, competitiveness and contributions to national growth; second, the need to maintain and create good manufacturing jobs; and third, manufacturing extension as public investment that provides positive social and private returns. Are those arguments adequate?

Roessner. Chris Thompson sharpened the dilemma of evaluators and program people. Elected officials' constituents want jobs. We can show a full array of economic development and modernization measures, but some of them, particularly concerning jobs, may not show positive returns.

Russell. We talk to some reasonably bright staffers in Washington. For manufacturing extension, the focus is not on job creation. I say, manufacturing extension is about deficit reduction. With reasonable assumptions, you can show that the impact of the program on the budget is positive. Deficit reduction is the current key phrase. The issue of causation is not critical—it's simpler than we worry about. Its effective if you can show that the impact of the program on the budget deficit is positive over the long run.

Rhoades. From the state level, there are no expectations that manufacturing extension will grow jobs at a significant level. It's more a job retention issue. There could be a reduction in jobs, but the company will stay there. It will be interesting over time to see what the level of expectation is for evaluating other economic development programs as well. For example with industry recruitment programs, how much of a science is involved in evaluating them?

Feller. One issue I see emerging is that of maintaining dialogue between the politicians and the practitioners. There appears to be a "metric of the moment." The current measures are different from what they were a few years ago, when job creation was important. A time lag exists during the performance of an evaluation, between the time of the response to the RFP and the report of results. It takes time to do a carefully crafted study. As one conducts the study, the policy agenda changes. One is constantly trying to retrofit and keep pace with the current political "mantra." The political framework is much more dynamic. I'm struck by the return on investment analysis. The current mantra is to reduce the budget. What was last year's investment is this year's expenditure. It's wistful to believe that as evaluators we can turn the system around.

Carlisle. But, what should drive evaluation other than policy demands? There's got to be a policy to guide evaluation. We fail if we are trying to use evaluation as a substitute for policy making.

Ellington. The Trade Adjustment Assistance Center (TAAC) program has survived solely on return on investment calculations. That gets us in the door. It doesn't keep the program in the budget. The phone calls and lobbying do that. So I think you need both.

Luria. I think there is a single measure on the justification side. Forget the jobs created and retained and productivity (capital productivity reduces property taxes). What fiscal units collect data on is income. Growing the business works better for this type of number crunching. It's the numerator that should be the focus. Product development is good. You can get the ratio up by focusing on the numerator. Did the program increase value-added in the state? I think it's highly unlikely that these programs pay for themselves. If that were true, states would run surpluses year after year. I'm a little shocked at how quickly we veered from the uses of evaluation to talking mainly about

program justification. It's sad that Chris and Jack have to spend all their time to convince people to spend money on this rather than on stadiums. As an evaluator, this thing is probably screwed up somewhere--private projects fail too. The question is, is there, within this ineffectiveness, some stuff that works well? Are there certain kinds of projects that work well for certain kinds of industries? Let's figure that out and do a lot more of those.

Russell. I have no problem being a "spinmeister." I believe I'm doing it in the service of a fundamental mission. What sells is the story. What needs to be created is a clearer ideological commitment--that the fundamental purpose concerns closing the gap between SMEs and large manufacturers. That purpose can be presented in a number of ways.

Ellington. I hear language that we're trying to evaluate services MEP as a homogeneous group. That is not true. It scares me to think that we're going in to a major corporation and saying, "these are the services we offer." I would think Jack has a hard time on the hill saying "the MEP" when there is so much difference between centers. Are we efficient as a system setting policies within the MEP system?

Shapira. My own thoughts are that the services of the individual MEP programs are different, but the greatest variation is in the form of organization. There is not as much difference in the services they deliver than in the organizational form. That's an interesting element of the evaluation. You've got diverse organizations offering less diverse services.

Oldsman. The answer is less complicated. People are raising different issues they'd like to see addressed. Some relate to economic impacts, some to economic benefits, some to relationships between what is done and performance in firm. These questions are all legitimate. As evaluators, we should be clear about what the question is so that we can be careful to structure the evaluation to answer the

particular question. Then we can say, what are the appropriate measures and techniques? What is the level of evidence to be credible? At the political level it may be enough to have good stories by key constituents. When we write case studies, they can be packaged for different audiences. And we sometimes use evaluation to convince, at the margin, somebody who is leaning. In that case, the methodology becomes important. We've got to sit down and ask, "What are the specific questions we have? What are the specific methods we can use?"

Bury. I agree with Rick. There are two levels of questions. One level is, "Is it appropriate policy for the government to be involved through the MEP?" This raises issues of market failures and public goods that would compel government involvement. We could use help there. Once that question is addressed, the next question is, "Are we doing a good job? Is the government getting the best bang for its buck? Are we closing that productivity gap?"

Gray. By trying to do an exhaustive evaluation covering all outcomes, isn't there still the possibility that a year or two into the study, you'll find yourself in the position of studying something not of interest?

Oldsman. The problem is the lack of theory appropriate for purpose of program. Jack says, "The purpose of the program is to close the productivity gap between large and small manufacturers." Its either value-added or productivity issues, about increasing income. If you asked me, I would build a program around this, and then I'd evaluate that. Let's decide that this is the program. Then force the program in that direction.

Feller. I would bet that five years from now, the MEP program will be thriving and surviving, but that justification for the program will not be closing the productivity gap. It's an empirical proposition. The policy agenda will be such that the program justification will be different. If you like structuring well-crafted designs, you will find that the policy agenda will have changed. I

recently directed a five-year demonstration project on personnel reform. At the beginning of the project, there was a belief that the federal government was becoming less competitive with the private sector. In the middle of the project, there was a change to a more lean public sector model combined with the “reinventing government model” and there were government shutdowns. The labor shortage came to be seen as a labor surplus. Thus, evaluations can be sterile, arid undertakings. Policy issues come out of nowhere. You think you are addressing important questions, but then the questions change. Fortunately we had a comprehensive design so we could deal with the policy changes.

Swamidass. You are dealing with a moving target. If you can get \$7 return for every dollar, that should be convincing. If people are not convinced, something must be wrong. Don't people believe this analysis? The other question is, “What if a company had invested that \$1 rather than the MEP?” Would a return of 15% be satisfactory? Why should the state not put money there?

Jarmin. Or why would people at MEP centers not open their own consulting firms?

Burress. I agree with the idea that policy is a moving target. I agree that there are a large number of relevant metrics and a limited number that we can afford to measure. The problem can be overstated, however. For example, the distinctions between program justification and program improvement, between outcome evaluation and process evaluation, do not lead to entirely different metrics. If one program has better outcomes than others, then choose it, or use it as a model. If one process is alleged to be superior to another, we need to support that claim with outcome measures.

Among outcome measures, I believe the best single measure for economic development programs is net fiscal incidence. A program with positive fiscal incidence more than pays for itself, so the government is in a better position. In addition, as long as

tax rates are held fixed or reduced, the taxpayers are made better off, so it almost surely passes a social cost-benefit test.

Thompson. Paul Swamidass asked why governments don't invest more in extension if the returns are 7:1. I think it's for political reasons. Politicians hand money over to sports franchises without rigorous economic studies. They don't look at it that way. So, we have to put up a political defense for extension. We respond very quickly when politicians ask, “who's been served in my district; we are going to be more pro-active in providing that type of information in the future.

