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MULHOLLAND'S GIFTS: FURTHER REFLECTIONS UPON SOUTHERN CALIFORNIA WATER SUBSIDIES AND GROWTH

STEVEN P. ERIE*

INTRODUCTION

Before drinking water or evaluating a policy critique, one should consider the source. Such is the case with the article co-authored by Mark P. Berkman and Jesse David of the National Economic Research Associates (NERA) commenting on and criticizing an article written by Pascale Joassart-Marcelli and myself.¹

I was flattered to discover that this so-called "Comment" on the research article I co-authored² is in actuality a high-priced consultants' report (costing nearly twelve times our original research) commissioned by a public agency worried about our findings. NERA's supposedly "unbiased independent" contribution to the region's water policy dialogue was commissioned and financed by the San Diego County Water Authority (SDCWA) under a long-term consulting agreement with NERA with respect to Metropolitan Water District of Southern California (MWD) financing and rate restructuring matters.³

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1. See Mark P. Berkman & Jesse David, *Water Subsidies in Southern California: Do They Exist and Have They Contributed to Urban Sprawl?, A Comment on an Article by Steven P. Erie and Pascale Joassart-Marcelli Titled 'Unraveling Southern California's Water/Growth Nexus: Metropolitan Water District Policies and Subsidies for Suburban Development, 1928-1996,'* 37 CAL. W. L. REV. 157 (2000).

2. See Steven P. Erie & Pascale Joassart-Marcelli, *Unraveling Southern California's Water/Growth Nexus: Metropolitan Water District Policies and Subsidies for Suburban Development, 1928-1996,* 36 CAL. W. L. REV. 267-90 (2000). USC's Southern California Studies Center and the James Irvine Foundation provided an \$8,500 grant for our original research. This was the only financial support we received for the study.

3. National Economic Research Associates (NERA) was retained by the General Counsel's Office, San Diego County Water Authority (SDCWA), "to prepare an *unbiased independent review* and critical analysis of a pending article by Steven P. Erie and Pascale Joassart-Marcelli that we were informed was to be published in the California Western Law

The Berkman/David critique is flawed in two key respects. First, it is one-sided and selective, reflecting only the perspective and interests of its San Diego sponsor. Sponsor bias is evident in the authors' definition and discussion of subsidies, the adjustment factors they bring to our MWD member agency cost/benefit analysis, and their discussion of water transfers and wheeling (or conveyance) charges. Throughout, Berkman and David attempt to reduce the City of Los Angeles's historical subsidy of other MWD member agencies and minimize San Diego's subsidization, especially by Los Angeles.

Their adjustments to MWD member agencies' historical costs are misleading and false. Once they open the Pandora's box of subsidy adjustments, our analysis of Los Angeles's substantial historical subsidization of San Diego water provision, as well as other member agencies, is strengthened, not weakened. Berkman and David fail to consider, *inter alia*, the substantial benefits to San Diego bestowed by William Mulholland, founder of Los Angeles's municipal water system. Among "Mulholland's gifts" is his 1924 filing on behalf of the City of Los Angeles for 1.1 million acre feet (AF) of Colorado River water per year (later given to MWD), which has been San Diego's lifeline.

Second, Berkman and David abuse statistical modeling techniques to reach conclusions contrary to common sense. The result is a strained and contrived effort to debunk our analysis concerning the possible relationship between MWD water availability and subsidies, and patterns of regional growth. If Berkman and David did not work out of NERA's San Francisco office, but instead had experience in semi-arid Southern California, they would be in a far better position to appreciate this region's intimate water/growth nexus.

What follows is a reexamination of the major arguments and conclusions of the Berkman/David "Comment." The focus is on the benefits and costs of MWD membership for the City of Los Angeles and the San Diego County Water Authority.

Review." SDCWA, Revised Board of Directors Workshop, Agenda Item No. 6, at 3 (Feb. 11, 2000) (emphasis added). SDCWA paid NERA \$100,000 for the research and writing of the Berkman/David "Comment." This particular work product was produced under NERA's long-term agreement with SDCWA:

[F]or Special Consulting Services with respect to Expert Analysis and Consultation Regarding Fees, Rates and Charges of the Metropolitan Water District of Southern California. . . . All of the services provided by NERA implement the strategic plan objective of assuring a safe, reliable supply of water. The Water Authority, both internally and as a member of Metropolitan, is presently engaged in substantial and significant efforts to develop, evaluate and implement revenue sources and legal relationships that are fundamentally different from those that have historically existed and are now existing. NERA is supporting the Authority's efforts in this regard.

Id. at 2.

I. SUBSIDIES: DETERMINING "STAND-ALONE" AND "INCREMENTAL" COSTS

Contrary to the assertions of Berkman and David, our definition of subsidy is simple and straightforward. We define subsidy in terms of MWD member agencies' total real (inflation-adjusted) financial contributions (water charges, property taxes, annexation fees, etc.) relative to the amount of water received. This average unit cost approach is quite sensible in a cooperative structure such as MWD as it provides a direct link between financial contributions and tangible benefits to member agencies. Since MWD's creation in 1928, the City of Los Angeles has paid over twice its share of MWD's financial contributions (seventeen percent) relative to the share of MWD water received (eight percent). In contrast, San Diego has received a thirty-five percent greater share of MWD water (twenty-six percent) than its proportion of financial contributions (nineteen percent). As a result, between 1928 and 1996 the residents of the City of Los Angeles overpaid \$1.9 billion relative to their MWD water usage, while San Diego County residents underpaid \$1.3 billion. We concluded that this was *prima facie* evidence for the presence of a subsidy relationship.

Berkman and David, however, accuse us of defining subsidy in "a limited, non-economic sense."⁴ Alternatively, they argue that "a 'subsidy' implies that existing users of the resource sacrifice funds to supply another user at less than the incremental cost imposed by that user."⁵ They offer two tests for a subsidy-free pricing system:

The *stand-alone cost* test simply requires that the cost borne by each user of the system not exceed that user's stand-alone cost . . . [E]ach user must be better off after participating in the enterprise than it would be outside of the system. The *incremental cost* test simply requires that each user must pay at least as much to participate in the system as the incremental cost of including that user on the system.⁶

Significantly, they do not even develop and test their model, which they admit would be necessary to determine MWD member agency subsidies.

Using their tests, a powerful case can be made for subsidies between MWD member agencies, particularly Los Angeles and San Diego. Under the "stand-alone" test, the amount of money Los Angeles has paid to MWD to build facilities used by Los Angeles exceeds the amount the city would have spent if these facilities were only intended to serve its own residents. Los Angeles's "stand-alone" facilities would not be nearly as large since MWD facilities are sized and built to serve all of its member agencies. Some of MWD's facilities in Los Angeles are of little or no value to that city, but exist to benefit other MWD member agencies. Los Angeles, therefore, may be in a worse situation with MWD, indicating a potential subsidy. By the same

4. Berkman & David, *supra* note 1, at 175.

5. *Id.* at 158.

6. *Id.* at 161-62 (footnotes omitted).

token, San Diego's "stand-alone" costs are enormous relative to its MWD financial contributions. San Diego has limited local water sources, a small 112,000 AF/year Colorado River filing (given to MWD upon annexation) relative to its current average use of about 500,000 AF/year, and no independent aqueduct system for imported water. Unlike Los Angeles, therefore, without MWD San Diego would be far worse off.

Even employing Berkman and David's "incremental" cost test, a convincing case still can be made that areas joining MWD later, such as San Diego (annexed in 1946), have not paid their fair share of MWD's large start-up costs. Early annexation fees (representing back taxes) were modest, and did not feature interest charges. Property taxes subsidized low MWD water charges until the late 1960's. Such favorable terms point to the presence of a subsidy granted to the later joining MWD members from founding agencies like Los Angeles, which heavily financed early MWD water provision.

Berkman and David treat MWD as if it were a private utility that should not charge much beyond the increment needed to add new users.⁷ This is a dubious proposition historically, politically, and developmentally. One can just as easily consider MWD a man-made wonder whose "stand alone" development costs have been enormous. Not a victim of monopoly pricing, San Diego has been a prime beneficiary of the competitive advantage in water resource development that MWD has given the entire Southern California region.

Consider the difference between finding a watering hole in the desert and deciding how much to charge new users, in contrast to building a desalination plant and charging for large sunk capital costs. Likewise, consider a health food store selling an individual natural herbs that can be grown in one's own garden, compared to a pharmaceutical company charging substantial "stand alone" costs for developing a wonder drug. By using the Berkman and David logic, Merck and Pfizer did themselves a favor by developing new drugs (after all, the owners and employers might get sick and need to use them!) and should be limited to only charging the incremental cost of producing each additional pill.

Entrepreneurs should be credited, at least in theory, with a steep "stand alone" value for their creativity, daring, and risk taking even if they do not demand full compensation for political reasons. Similarly, an enterprising city such as Los Angeles should be credited with substantial "stand alone" values for its major role in creating MWD, financing most of its early infrastructure, and providing nearly all of its Colorado River water supply. Choosing not to charge their full value, Los Angeles has provided a substantial subsidy to other MWD member agencies far in excess of what Berkman and David allow.⁸ The authors' dismissive assessment of the value of Los

7. See Berkman & David, *supra* note 1, at 162.

8. See *id.* at 158-59.

Angeles's major, early MWD investments to later members such as San Diego is not convincing.

The reasons for Los Angeles's heavy subsidization of early MWD infrastructure and water supplies are part of a complex equation involving both economic and non-economic factors that can be quantified in different ways. The need for water supplies adequate to fuel regional development was a paramount driving force, even though there may also have been some lesser role played by non-pecuniary factors, such as pride in regional growth. If critics such as Berkman and David wish to quantify the value of these psychological returns, that is their prerogative. But their absurd conclusion that outlying areas actually have subsidized the City of Los Angeles should not be dignified with a reply.⁹

Consider the psychological and non-economic dividends that the U.S. and U.S.S.R. derived from the space race. Berkman and David might argue that companies now subsidized to put up commercial satellites are, in actuality, the benefactors rather than beneficiaries of the space program. The truth of the matter, however, is that commercial satellites are put into space essentially for only "incremental costs." This is not because the "stand alone" cost of developing the rockets that put them there are only marginally significant to the economic benefit calculations of commercial satellite firms. Rather, it is because the "stand alone" costs are so astronomically high that commercial companies could never begin to repay countries for the initial cost of development.

II. ADJUSTING AGENCY SUBSIDIES: OPENING PANDORA'S BOX

If the real question is who is subsidizing whom, then Berkman and David should be congratulated for validating our research by quantifying the value of the City of Los Angeles's water subsidy to the Southern California region. Even with all their so-called "adjustments," they conclude that Los Angeles's subsidy, which we calculated at \$1.9 billion, is "less than \$1 billion."¹⁰ They also find San Diego's subsidization by other MWD member agencies to be only \$80 million, rather than the \$1.3 billion resulting from our calculations.¹¹ Even if their numbers were correct, subsidies in the tens, if not hundreds, of millions of dollars are not inconsequential.

In critiquing our cost/benefit analysis, Berkman and David identify certain adjustment factors that they contend yield a more accurate analysis of member agency historical unit water costs and benefits.¹² These major adjustments to Los Angeles and San Diego subsidies—option value, agricul-

9. See *id.* at 159.

10. *Id.* at 158. It should be noted that if only capital investments in MWD were considered, the present value subsidy by Los Angeles would be much higher—\$2.3 billion.

11. See Berkman & David, *supra* note 1, at 159.

12. See *id.* at 159-60.

tural water, water quality differences, and MWD asset value¹³—will now be examined. The benefit of a more liquid MWD asset, Mulholland's Colorado River filing, will also be discussed

A. Option Value (Drought Insurance)

Berkman and David subtract from the City of Los Angeles's subsidy level the value of MWD as a drought insurance policy relative to Los Angeles's Owens Valley supplies.¹⁴ They estimate this so-called "option value" reduction at \$300 million.¹⁵ In doing so, they make several assumptions regarding the dry-year value of water on the basis of a drought index and the subsidy provided by MWD to assist its member agencies in developing local projects.¹⁶ Their premises are faulty, however, because all member agencies always have enjoyed equal access to MWD's water, even during droughts. For example, during periods of shortage such as 1976-77 and 1987-92, L.A. could not rely upon its preferential rights to over one-fifth of all MWD water because (a) they were legally questionable; and (b) MWD decided that no member agency should suffer more than another.

Placing a subjective value upon water based on dry-year utilization is specious. The true value of MWD water, dry or wet year, is what the member agencies pay to receive it. MWD water prices apply equally to all member agencies as part of its cooperative structure, and for nearly all its history MWD has had adequate supplies and capacity to serve the region's needs. There is no justification for placing a different value on water just because member agencies may need to purchase more of it.

Significantly, Berkman and David do not consider the economic value to the rest of Southern California of Los Angeles's development of its own Owens Valley and Mono Basin supplies, which relieved MWD of having to develop additional supplies. This represents a form of free drought insurance for agencies such as San Diego. Los Angeles's municipal water system—one of William Mulholland's many "gifts" to Southern California—is a real benefit to other MWD member agencies in that it significantly reduces Los Angeles's demand upon MWD's system. Had Los Angeles not gone ahead and invested \$4.5 billion to develop its own water sources, it would be in a very similar situation as San Diego, forced to rely heavily upon MWD for the lion's share of its water. Such dependence would have left substantially less water for everyone else in Southern California.

Los Angeles's municipal water system has been totally financed by its citizens at no cost to other MWD member agencies. For example, the city spent \$100 million in the late 1960s to construct the second Los Angeles

13. *See id.*

14. *See id.* at 159, 162.

15. *See id.* at 159.

16. *See id.* at 169-70.

Aqueduct that delivers on average 210,000 AF/year to the MWD service area. This is about as much as San Diego expects to receive from the Imperial Valley. Los Angeles, however, accomplished this feat without financial assistance from Sacramento, and by building its own conveyance facility. Los Angeles's continuing expenses include operation and maintenance, taxes paid in Inyo and Mono Counties, and hundreds of millions of dollars spent for environmental mitigation.

Clearly, this is a free and valuable gift of water to the MWD service area. If Los Angeles had decided not to build the second aqueduct, and instead shifted its demand to MWD to deliver 200,000 AF/year, then potential shortages could have occurred affecting San Diego and other MWD customers. This could have put upward pressure on the price of water for all MWD customers. Los Angeles's system is of obvious benefit to the rest of Southern California. Ignored by Berkman and David, Los Angeles's substantial municipal investment is an important offset that should be included in a full and fair accounting of MWD member agency "insurance" benefits and costs.

B. Agricultural Water

In asserting that agricultural water has a "lower value" than treated water, Berkman and David develop a water-type adjustment purporting to reduce San Diego's subsidy by over \$600 million.¹⁷ Their adjustment is unwarranted. They do not substantiate what is meant by "lower value," fail to understand that agricultural water is priced significantly lower to reflect its "interruptibility," and do not consider the economic benefits of agriculture to affected areas.¹⁸

Agricultural water is not of lower quality. It is offered at a discounted price because it is meant to be a less reliable supply, subject to cutbacks during drought conditions. Yet, San Diego's agricultural community received a firm supply at reduced rates until 1991. This is clearly a major historical subsidy to San Diego, and should not be treated otherwise.

C. Water Quality

Berkman and David also develop a subsidy adjustment for the differences in water quality that MWD provides to its members.¹⁹ This factor supposedly reduces San Diego's subsidization by \$253 million while decreasing Los Angeles's subsidy by \$68 million.²⁰ Their water-quality assessment, however, is flawed, as it is merely a one-sided reflection of San Diego's concerns with Colorado River salinity. Prior to completion of the State Aq-

17. See Berkman & David, *supra* note 1, at 159.

18. See *id.* at 165-66.

19. See *id.* at 173.

20. See *id.* at 176 tbl.5.

ueduct in 1970, all MWD member agencies including Los Angeles received the same quality Colorado River water. Since the State Aqueduct became operational, almost all agencies have received a mixture of State and Colorado River water.

For member agencies, the blend of water received has depended upon water supply availability and MWD's infrastructure. Thus, salinity in MWD's Colorado River water supply has been a concern among all MWD members, because almost all of Southern California receives this supply. Other member agencies besides the SDCWA are affected as well, although not to the same degree, and also must pay for the cost of mitigating salinity's impact upon the region. Water quality for San Diego will be greatly improved by the recently completed mammoth Diamond Valley Lake project, capable of storing 800,000 acre feet of blended water, coupled with the Inland Feeder pipeline (currently under construction) bringing more State Water Project supplies to the region.

Currently, MWD is supplying a blend to San Diego that keeps the total dissolved solids (TDS) under 500 parts per million (ppm). Interestingly, if water quality is such a concern to San Diego, why did SDCWA pay \$250/AF (plus conveyance charges) to import 200,000 AF per year of high salinity Colorado River water from the Imperial Valley, rather than seeking higher quality water from the Central Valley?

Los Angeles and other member agencies that receive unblended state water are facing additional water-quality problems such as the presence of organics and bromides, both of which add to cancer risks and require costly mitigation. Berkman and David do not address the financial impacts of high total organic constituent levels found in MWD's other source of supply, the State Water Project.²¹ Agencies such as Los Angeles have financed expensive treatment facilities in anticipation of future regulatory standards related to this supply. These offsets counterbalance their adjustment factor. A complete and balanced accounting of MWD member agency water quality benefits and costs needs to include State Water Project concerns, as well as Colorado River salinity.

D. MWD Asset Value

Finally, Berkman and David attempt to determine what fraction of MWD's 1996 book value of \$3.4 billion is "owned" by each member agency in terms of fixed payments such as property taxes, standby charges and connection fees.²² These so-called "preferential rights" shares are then subtracted from each agency's total historical payments.²³ This is a major readjustment factor. It appears to reduce Los Angeles's overpayment by \$545

21. *See generally id.*

22. *See Berkman & David, supra* note 1, at 173.

23. *See id.* at 174.

million and lower San Diego's underpayment by \$406 million.²⁴ At the onset, it should be noted the authors failed to include asset depreciation. This should have been included in their calculations, and had it been it would have reduced their adjustment factor.

When all is said and done, however, their asset apportionment scheme is spurious. MWD's assets are not for sale and will not be given back to member agencies. Preferential rights, the basis of their adjustment, actually are claims upon MWD water during scarcity. They do not represent an equity stake in any other agency asset. Such rights are based on member agency property taxes and other financial contributions, including annexation fees, for MWD capital and operating costs, exclusive of water sales. Los Angeles, therefore, has a preferential claim to twenty-three percent of MWD water relative to SDCWA's fifteen percent claim. As noted, preferential rights never have been enforced, and are not likely to be.

E. Liquid Assets: Mulholland's Colorado River Filing

Since Berkman and David have proposed an asset apportionment scheme,²⁵ let us extend their logic to MWD's liquid assets, particularly its valuable Colorado River water appropriations. Here, William Mulholland and the City of Los Angeles bestowed a major gift upon Southern California: its substantial Colorado River water filing for free use by all MWD member agencies. In our original article, Pascale Joassart-Marcelli and I acknowledged this valuable gift, but did not attempt to calculate its economic value. Let us now do so for San Diego. Fully ninety percent of MWD's fourth and fifth priority appropriations, representing 1.1 million acre feet per year, stems from Mulholland's 1924 filing for the City of Los Angeles.²⁶ The re-

24. See *id.* at 176 tbl.5.

25. See *id.*

26. See CITY OF LOS ANGELES AND BOARD OF PUBLIC SERVICE COMM'N OF THE CITY OF LOS ANGELES, APPLICATION FOR A PERMIT TO APPROPRIATE UNAPPROPRIATED WATERS OF THE STATE OF CAL. FOR MUNI. PURPOSES, APPLICATION NO. 4056, filed June 28, 1924, with Div. of Water Rights, Dep. of Pub. Works, State of Cal.; see also the SEVEN-PARTY WATER AGREEMENT, Aug. 18, 1931, apportioning California's share of the waters of the Colorado River among various applicants and water users. Article I, section 4, states "A fourth priority to the Metropolitan Water District of Southern California and/or the City of Los Angeles, for beneficial consumptive use, by themselves and/or others, on the coastal plain of Southern California, 550,000 acre-feet of water per annum." Article I, section 5, provides:

A fifth priority (a) to the Metropolitan Water District of Southern California and/or the City of Los Angeles, for beneficial consumptive use, by themselves and/or others, on the coastal plain of Southern California, 550,000 acre-feet off water per annum and (b) to the City of San Diego and/or County of San Diego, for beneficial consumptive use, 112,000 acre-feet of water per annum. The rights designated (a) and (b) in this section are equal in priority.

Appendix 1003, WATER: CAL., SEVEN-PARTY WATER AGREEMENT A480 (Aug. 18, 1931). For the conveyance of the City of Los Angeles's interests in the Colorado River Aqueduct Project to the Metropolitan Water District of Southern California, see "Agreement of Purchase and

maining ten percent represents the City of San Diego's 1926 filing for a much smaller Colorado River allotment—112,000 acre feet per year.²⁷

The value of "Mulholland's gift" to San Diego is substantial. Of the nearly fourteen million acre feet of water San Diego has received from MWD in the first fifty years of delivery (1947-1996), slightly over one-half—7.1 million acre feet—have been from Los Angeles's original filing. (I assume that San Diego annually claims its own appropriation first). If priced in real terms at \$100 per acre foot—well below today's market cost—this would represent an additional \$710 million Los Angeles subsidy for San Diego water provision. If priced at the rate SDCWA is willing to pay for Imperial Irrigation District water, that is, at \$250/AF, Los Angeles's historical subsidy of San Diego balloons another \$1.775 billion. In and of itself, "Mulholland's gift" effectively cancels out most, if not all, of their reduction of San Diego's subsidization.

In summary, the Berkman/David subsidy "adjustments" are either specious or biased in favor of San Diego. Excluding the spurious agricultural water and MWD asset value reduction factors,²⁸ Los Angeles's MWD subsidy is nearly \$1.6 billion, and San Diego's historical subsidization approaches our original estimate of \$1.3 billion. For the option value (drought insurance) and water quality adjustments, there are counterbalancing offsets ignored by Berkman and David. Taking all these factors into account, Los Angeles's historical subsidy approaches our original \$1.9 billion calculation, and San Diego's subsidization may even exceed our derived figure, revised by Berkman/David to nearly \$1.4 billion to reflect 1999 data.²⁹ Were MWD's liquid assets included, San Diego's historical subsidization by Los Angeles roughly doubles compared to our original calculation—to \$2-3 billion. Our original subsidy calculations, therefore, are reasonable, perhaps even conservative, first-cut derivations.

III. CAUSE AND EFFECT IN ALICE IN WONDERLAND

Berkman and David accuse us of the elementary social science sin of mistaking correlation for causation.³⁰ Our research, however, did recognize the complexity of the causal issues involved, and we noted our findings should be considered exploratory. We merely suggested that the subsidy/growth relationship for MWD member agencies was surprisingly strong

Sale by and between The Metropolitan Water District of Southern California and the City of Los Angeles and Department of Water and Power of the City of Los Angeles." (May 7, 1935).

27. See CITY OF SAN DIEGO, APPLICATION FOR A PERMIT TO APPROPRIATE UNAPPROPRIATED WATERS OF THE STATE OF CALIFORNIA FOR MUNICIPAL PURPOSES," APPLICATION NO. 4997, filed April 15, 1926, with the Div. of Water Rights, Dep. of Pub. Works, State of Cal.

28. See Berkman & David, *supra* note 1, at 171-72.

29. See *id.* at 176 tbl.5.

30. See *id.* at 179-80.

for the pre-1970 period—when MWD primarily relied upon property taxes for revenue—and should be further researched.

We also pointed out the presence of other demographic, economic and policy factors that should be included in a full-blown causal analysis. As we noted, the lack of comparable available data made such analysis difficult. It is not uncommon to perform an analysis using only one independent variable for the sake of determining how that single factor may correlate with a dependent variable. In the case of an exploratory study which sets an agenda for further research, this is a valid first cut.

Proving historical causation is a complex matter involving the use of inferences and a “but for” analysis. In my view, how can the availability of inexpensive water from MWD be anything else than the *sine qua non* for San Diego’s development? Instead, as in Alice in Wonderland, causation for Berkman and David is exactly what *they* mean, whether or not congruent with reason and common sense. They thus contend that San Diego developers created their own “subsidies” by independently “mid-wifing” the region’s development, for which MWD then provided them water!³¹ The mistake of Berkman and David is not of putting the cart before the horse, but of failing to recognize the condition precedent of a full water wagon.

Consider which of these two possibilities is more likely: (1) the existence of MWD without a growing San Diego to buy its water; or (2) a growing San Diego without MWD to buy imported water from? Only the first is plausible. Given its small Colorado River water appropriation, inability to build its own aqueduct, and limited local groundwater supplies, San Diego would not have had sufficient water to grow without MWD. Water can be pumped upstream, but the compelling nature of causation cannot be altered by facile statistical modeling reversing patently obvious real-world cause-and-effect relations.

As for the impact of MWD charges upon regional growth decisions, Berkman and David claim there is a mismatch in our study between the measure of water cost used and the actual price of water facing developers in Southern California.³² They contend that the incremental cost of water purchases historically has been equal across the various regions.³³ Any new user of water would have paid MWD’s postage-stamp or uniform rate.

Berkman and David confuse water prices with total unit costs per acre foot of MWD water by failing to include property taxes paid by heavily populated areas such as Los Angeles. We do not. Our study examined regional growth patterns under two different MWD financing regimes: a property-tax based system prior to 1970, and a commodity-charge based system after 1970. We find a robust subsidy/growth relationship in the pre-1970 era, but not afterwards. We conclude therefore that Los Angeles’s substantial

31. *See id.* at 178-79.

32. *See* Berkman & David, *supra* note 1, at 178.

33. *See id.*

early MWD investments subsidized, and may have supported growth in, sparsely settled areas of Southern California.

IV. WATER TRANSFERS AND WHEELING CHARGES

Finally, Berkman and David assert an incremental or point-to-point cost-based wheeling charge for water transfers would guard “against subsidies and [should] promote ‘smart growth’ as opposed to sprawl.”³⁴ Incremental wheeling charges are strongly endorsed by the SDCWA. While there is nothing wrong with incremental pricing, the problem here is how the SDCWA chooses to apply it. The Water Authority asks us to assume that Colorado River Aqueduct capacity would go vacant if San Diego did not use it for its water transfer with the Imperial Irrigation District (IID). MWD and its other member agencies, however, are doing everything possible to make sure the aqueduct stays full. MWD’s discussions with the U.S. Interior Department and other states concerning surplus water “banking” are designed to accomplish this goal. Understandably, MWD does not want to give preferential treatment to one of its twenty-seven member agencies to the detriment of the other twenty six.

Those who advocate incremental pricing, as Berkman and David do, recognize that there are *incremental capacity costs*, which, when there is growing demand, reflect the fact that capacity ultimately must be increased. Such costs capture the price of anticipated capital improvements. Well before full capacity is reached, adequate incremental capacity costs should be included in rates (adding what NERA calls congestion charges) to distribute accurately and fairly all existing and new capacity costs. In this way, those increasing their demand make the decision to do so based on the costs they actually impose on the system, thereby avoiding an inefficient allocation of resources based on invalid pricing signals. Yet, the SDCWA’s proposed incremental wheeling charge omits incremental capacity costs. This is a misuse of incremental pricing. Since such pricing is a major area of NERA’s expertise, there is no justification for their apparent defense of SDCWA’s flawed wheeling scheme.

Berkman and David offer no credible evidence for their claims that incremental wheeling charges prevent both subsidies and sprawl.³⁵ In our paper, we posed the following question: Were water transfers such as the IID/SDCWA agreement more about reducing recipient capital financing burdens than about guaranteeing water reliability?

As we noted, MWD receives seventy-five percent of its revenues from variable water sales while eighty percent of its costs are fixed. Thus, any reduction in water revenues by a member agency seeking to substitute transfers for MWD purchases could result in significant cost shifting to other

34. *Id.* at 182.

35. *See id.* at 182.

member agencies, who would be forced to pay the difference. Significantly, Berkman and David do not explain why in 1998 the California State Legislature approved \$235 million in general fund monies to compensate non-San Diegans for the adverse financial impacts of the IID/SDCWA transfer upon other MWD member agencies. This clearly was a subsidy paid for by the California taxpayers.

Since our original article was published, the California courts have rejected the concept of incremental or point-to-point wheeling charges in MWD's validation lawsuit seeking a postage-stamp rate (including system-wide costs) for short-term conveyance of transferred water through the Colorado River Aqueduct. On June 30, 2000, the State Court of Appeal, Second Appellate District, ruled that "there is no admissible historical evidence the Legislature intended that reasonable system-wide costs could not under any circumstances be considered in developing a wheeling transaction fee."³⁶

Do water transfers like the IID/SDWCA deal encourage smart growth and protect the environment? A strong case can be made that such transfers are actually intended to encourage urban growth. The San Diego Association of Governments (SANDAG) estimates the county will add one million new residents in the next twenty years. The Imperial Valley transfer helps insure that such massive growth can indeed occur.

In addition to not considering possible environmental degradation in rapidly growing San Diego, the authors fail to address the potentially adverse environmental and economic impacts of this transfer in the Imperial Valley and Mexicali. Conservation measures such as lining the All-American Canal threaten to reduce significantly agricultural seepage into the Salton Sea. This will necessitate costly mitigation efforts to maintain the Sea's water level and fragile ecosystem as one of the major stops for migrating birds on the Pacific flyway. Lessened seepage from the Imperial Valley also threatens to reduce the water supply available to Mexicali area farmers. These are very serious concerns, which deserve a far more sustained and balanced discussion than that provided by Berkman and David.

V. CONCLUSION

The San Diego County Water Authority's investment of significant resources in NERA's frenetic effort to debunk our modest study tells us that we were indeed very close to the mark. Alas, Berkman and David choose only to tell San Diego's side of the region's water story. In the world of professional consulting, telling a client what they want to hear is an all too frequent and lamentable occurrence. Unfortunately, the result here is an analysis of water subsidies, adjustment factors, growth impacts, water transfers and wheeling charges that is biased, misleading and false.

36. See *Metropolitan Water Dist. of S. Cal. v. Imperial Irrigation Dist.*, at 34, No. B119968 (Cal. Ct. App. 2000).

Water policy, particularly in arid and semi-arid regions such as Southern California, is far too important to be left to consultants. One can promote, as NERA does, water markets and incremental pricing provided one does not forget that water resource development in Southern California, as elsewhere, typically has flowed from acts of political leadership, will, and the public trust that often run counter to a strict marketplace logic. Such is the case with the Metropolitan Water District of Southern California. The vision and gifts of MWD's founding fathers, such as William Mulholland,³⁷ and the resource commitment of founding agencies, such as Los Angeles, underwrote the dramatic growth of the entire Southern California region well into the postwar era.

Not surprisingly, beneficiaries of subsidized water provision such as San Diego now desire water independence from the regional hegemon. San Diego, however, still refuses to acknowledge it has historically paid a less-than-equitable share of MWD's substantial developmental costs. The conceptual and statistical legerdemain so amply demonstrated in the Berkman/David "Comment" in support of San Diego's drive for independence on the cheap can be admired for its facile cleverness. At the end of the day, however, their effort should be viewed not as an "unbiased independent"³⁸ contribution to policy analysis, but as a form of special pleading on behalf of a worried client.

37. See CATHERINE MULHOLLAND, WILLIAM MULHOLLAND AND THE RISE OF LOS ANGELES 301-02 (2000).

38. SDCWA, Revised Board of Directors Workshop, Agenda Item No. 6, at 3 (Feb. 11, 2000).