

## **A New Approach to Pre- and Post-Injury Earning Capacity Analysis Utilizing the Constructs of the DOT & O\*NET Research & the eDOT Skills Project**

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**e\*NET, d\*NET, c\*NET**  
(or whatever one wants to call it)

This discussion will describe the job demographic and work capacity measures and databases that now allow for the identification and estimation of specific employers with probable applicable alternative specific jobs existent in calculable numbers (within a stated distance from a specific claimant's residence), all with calculations with error rates, pricing of those jobs, and related demographics. It will also describe how it is possible to have O\*NET-like job family data using the work measures language/terminology as found in the abandoned US Dictionary of Occupational Titles, last revised in 1991 (and now "15 or more years old"). The latter requires a job specific database like PAQ's eDOT Skills Project and its resultant software application, the enhanced Dictionary of Occupational Titles (eDOT). The former, specific employers within know radii with industry norm job family compositions, supported by emerging job board collections sites, is already found in multiple places on the web.

At the start, vocational experts may be interested in what ERI and PAQ know of the Social Security Administration's twice posted (June 2003 and 2004) "Revision and Updating of the Dictionary of Occupational Titles and Selected Characteristics of Occupations Defined in the Revised Dictionary of Occupational Titles." This inquiry read: *a request for information (Sources Sought Synopsis). This is not a solicitation. The Social Security Administration (SSA) is seeking sources capable of providing the Agency with a revised and updated version of the Dictionary of Occupational Titles Revised 4th Edition (DOT) and its companion publication, Selected Characteristics of Occupations Defined in the Revised Dictionary of Occupational Titles (SCO), published by the Department of Labor (DOL). SSA relies on these publications for its disability evaluation process and work opportunity and employment support initiatives. In its regulations, SSA takes administrative notice of reliable job information available from various governmental and other publications [20 CFR 404.1566(d) and 416.966(d)]. SSA currently uses the DOT and the SCO as the primary sources of information about jobs, job requirements, and the existence of work in the national economy. In addition, SSA's regulatory guidelines are based on DOT constructs and definitions. For example, they define sedentary, light and medium strength work in the same way it is defined in the DOT/SCO. However, DOL has not formally updated the DOT/SCO since 1991 and has no plans to do so. Instead, DOL is developing an entirely new system, the Occupational Information Network, or O\*NET. This system is useful for career and educational exploration and planning, but it does not provide the type of data required for disability claim adjudication or vocational rehabilitation and job placement of persons with disabilities. Therefore, SSA is seeking an existing occupational database that has been updated to provide the same type of data shown in the DOT/SCO, which SSA can use while developing alternative sources of occupational data. The database must: 1) currently exist (SSA is not interested in developing such a database for interim use); 2) utilize the same constructs and definitions as the DOT/SCO; 3) contain the complete set of descriptors found in the DOT/SCO; 4) contain information on work found in the national economy that is more recent than the 1991 version of the DOT/SCO; 5) be representative of work found in the national economy; and 6) have been developed in a statistically valid, reliable and defensible manner.*

This author, PAQ, and ERI know nothing about SSA's plans. SSA does not subscribe to any of ERI's or PAQ's products.

A year ago this writer/speaker attended an April 5, 2005 DC National Press Club Briefing where representatives of DRI (the Disability Research Institute) referenced a secretly funded study, "A New Methodology for Evaluating Opportunities for SSDI Claimants." As we understand the construct of DRI's Cray Computer backed semantic initiative, it processed prose and measures from the old DOT (85% of this data was collected between 1965 - 1977), prose from America's JobBank's job board (principally government openings), and the ~12,000 job family skill phrases identified by O\*NET, along with inferential mathematical models to predict mental and physical capacities and the semantic relationships to new disability related measures supposedly found within job boards. (I might have been reading between the lines, but I'm working daily with data from job boards, semantic analysis and job analysis.) Three levels of Advisory Groups (Federal, Vocational, Legal) were formed with funding of million dollars. Some in this audience may have secretly served or serve on these committees. By the time I give this talk, perhaps that study's results will have been made public. If I might guess the outcome of DRI's work, it would be "job board data hold promises, have problems, and need more study."

One might ask, “Where does the writer see SSA and/or general disability determination processes going in relation to vocational data?” My response would be to believe what one sees:

- SSA has done nothing but study the issue. Even the suggested posting above was a request for information (RFI), not a proposal (RFP). When nothing happens to a ship’s course, those in control must be happy with the direction.
- If O\*NET is “all that there is to use” (assuming the DOT/eDOT “is dead”), its use will happen by default. If there are no job- or work-specific demographics, one would have to use the next best and only thing.
- O\*NET’s shortfalls may be politically acceptable:
  1. Averaging work measures in a job family moves all measures to the median of a measurement scale. For claimants with work histories matching the low side of these scales, few alternative job families would ever be identified. For claimants on the high side (SVP, strength), huge populations of alternative jobs families could be shown. This could be mitigated, because,
  2. If SSA were to continue to focus on alternative jobs in the national economy (with ALJ’s informal >250 jobs available target), every job family reported would show alternative jobs (750 is the national low SOC population reported). But if DI were tied to the local economy of a claimant, perhaps based on a commuting or other workforce area definition, the shift could be made from arguing physical/mental capacities to the distance potential employers from a claimant’s residence
  3. There are enough homogeneous O\*NET job families (paralegals, word processors, receptionists), that if attacked for mixing “apples with oranges” and claiming “fruit” while coating that data with false numbers (O\*NET is now reporting a “stress tolerance” value and we challenge them to show their raw data. Even if they did show job analyst input, it is an “importance” measure and not a “frequency” measure and its results are ambiguous at best.) Perhaps a good enough story could be told to satisfy the SSA DI process where everyone “feels good” when a claimant wins. Soft data leads to the ability to provide soft determinations. As long as the budget allows SSA to triple the number of DI claimants every two Decades, who cares?
  4. Talking “job families” is easily understood; assigning jobs to job families is a skill taught in 10 minutes. Matching this data to job boards’ data which are even more general is a logical data marriage. For those who claim that labor economics is an art, they would have proof positive.
  5. Adding a “station in life” provision would solve all attorneys’ concerns.
  6. And it is a zero cost solution, one that makes all the proponents of O\*NET look like champions and gives cover to the DOT/eDOT Killers who face insurmountable face validity challenges. (In a 2005 challenge to O\*NET under the Data Quality Act, the OMB/DOL response was that SSA can use whatever data it wants. Neither BLS nor SSA are claimed to fall under that Act’s provisions.)

SSA (via DOL’s neglect) may soon “require” VEs and courts to use O\*NET by default (akin to giving soldiers only tanks and no rifles with which to fight). If it does, eDOT will still be useful. May we introduce e\*NET? In studying ~10,000 specific jobs, PAQ can quickly roll-up their measurement scores into job family averages. ERI and PAQ stand ready (anytime) to add this filter just in case the DOL/SSA succeeds in this strategy (if it is a strategy). The result would be that the Alternative Jobs, Potential Employers, and links to ERI’s eSpideri monthly Job Posting archives can be presented both on an SOC job family basis and/or an eDOT specific job basis. eDOT’s strengths then become an instant e\*NET using the construct of O\*NET and the data of the eDOT Skills Project. When it comes to “generalizations,” eDOT should be able to do a better job with e\*NET! Job family generalizations are easily computed.

1. e\*NET would use DOT job measures and a description of work language that everyone understands.
2. eDOT can create average work measures for strength, sit/stand, reaching, 64 long used DOT measures and 35 new eDOT constructs all using traditional DOT scales. O\*NET uses double scales and all new work measures difficult to explain, impossible to defend under a Daubert Challenge. eDOT measures will be more easily understood by those who have worked in the trade for more than three months. And as a note: PAQ has added 164,000 individual job analyses records to the eDOT Skills Project database, all created by a field job analysts. The 1939 DOT was created from 45,000 job analyses, the last full revision, 1977, reflected 75,000 field job analyses. eDOT is truly a Revised DOT. Averaging its data into job families is easy; the eDOT Skills Project shows those calculations and reports a rate of error. O\*NET and its supporters operate in secret with no raw data or calculation disclosure.

3. By knowing a claimant's address and the specific employers within a defined commuting radius, far better identification of potential employers should be possible. The focus on county data would solve many OES and Census Sector population reporting problems. (Labor economics are much distorted by the Census, BLS, and OES - all using different US geographic area definitions.) Several years ago in Philadelphia a national NOSSCR convention had a talk entitled, "How to Field Dress a Vocational Expert." To assist in avoiding this fate,
4. eDOT actually identifies potential employers by industry and geographic area, predicting alternative jobs' existence mirroring the background and abilities of a claimant. This might be a breath of fresh air for those who have struggled with vague labor economic data. Imagine viewing Potential Employers and knowing if these companies have been identified on Job Boards and/or if they were government contractors that must give preference to veterans, that is:
5. e\*NET and eDOT could do a better job of utilizing Job Board data, illustrating that jobs within specifically identified employers exist. Where specific job postings are found, matches to specific alternative jobs are easily shown. Please note the use of the word "specific." It is an adjective never used with job family data. That's not to say that O\*NET will not use or misuse the term.

I will begin this talk by copying/reporting what [www.onetcenter.org](http://www.onetcenter.org)'s "About the Survey" home page states, first paragraph, first sentence: *"The O\*NET Data Collection Program is designed to provide information for approximately 800 O\*NET occupations."*\*\*\*\* In a single sentence, they have redefined the traditional definition of "occupation." Even the untrained American public, if told there were but 800 types of jobs in America, would think it a strange claim. "Occupational groups" or "job families" is believable and factual. Implying that there are only 800 types of occupations with 250 or more incumbents in a country as large and diverse as America is difficult to believe.

A life's lesson is that one should "believe what they see." I'm forecasting that the DOT Killers will, in the days ahead, provide us humor in applying some magic lipstick (without disclosing its ingredients or sources) and telling us that O\*NET can satisfy all the needs of the disability determination process. The DOT was a DDP race horse, put out to pasture. eDOT is its faster, better DDP offspring. O\*NET is a bit of a pig. Over the next several years, it will be interesting to see who wins the race for the heart of disability determination process methodologies, lipstick or not.

\*\*\*\*

Address <http://onet.rti.org/survey.cfm>

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### About the Survey

The O\*NET Data Collection Program is designed to provide information for approximately 800 O\*NET occupations. These occupations have been defined

Now let's talk about Counting, Identifying, Listing, Locating, Mining, Parsing, Pricing & Valuing Jobs. Hopefully, listeners will judge this talk and the eDOT Skills Project by comparing it to what is truly known about O\*NET data. It takes real feed to grow real farm animals, pigs or horses, no matter how elegant they might appear, no matter how we describe them.

## Jobs

### Counting, Identifying, Listing, Locating, Mining, Parsing, Pricing & Valuing

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Picture yourself sitting in your chair, hearing a freight train approaching from the back of the room. What you will hear today is the sound of information and technology about to unexpectedly overrun labor economics, vocational counseling, and expert witness testimony. What will be described is “real;” it is already incorporated in available software applications. The sound and message you hear is that of recent emerging technologies and data mixing together in ways to forever change our knowledge of work in America.

#### Counting Jobs

Twenty-five years ago, politicians in the “Western World” (Republicans and Democrats alike in the US) silently agreed that knowing “what specific jobs” existed in an economy only gave fuel to their next year’s political opponents who could claim that “*on Representative X’s ‘watch’ we saw the last clockmaker job move overseas.*” Most western governments, including the US, changed their labor demographic collection models to those of “job families” where tracking of specific job demographics was no longer possible (automobile assemblers, cabinetmakers, fishing fly tiers, shock absorber installers, etc. all went into the single job family: “assemblers & fabricators”). In the US, this meant “killing” the Dictionary of Occupational Titles (DOT). Assuring that the “DOT is dead” was necessary because one needs to know what specific jobs exist/are, before they can be counted. One can’t count marbles without knowing what marbles look like. Today, we don’t know of anyone who can accurately predict counts of specific jobs in America, other than ERI. ERI Economic Research Institute, Inc. (ERI) does so because it needs to report numbers of incumbents, along with competitive rates of pay, for specific jobs. This data is supplied to 10,000 subscribers who “have no dog” in the war to destroy the DOT.

But let’s admit defeat in certain areas. Job family data reigns supreme. High schools and colleges can train “generally” using government job family data; it’s wonderful for career planning and aggregate economic studies! Unfortunately, private industry (ERI subscribers) wants practical, specific data about real jobs. The DOT Killers still exist, are in power, and have a defined agenda. But the needs of private industry run counter to these Killers’ goals. Proof point: if today’s US DOL O\*NET generalities and its complementing OES wage survey would suffice, there would be no reason for the existence of ERI, its 10,000 subscribers, or the hundreds of private salary surveys reporting competitive values for specific jobs. (ERI is not alone; Mercer, Wyatt, Towers, Hay, etc. have like numbers of subscribers for their job specific survey data). When it comes to “earnings data” in the business world, “government data” is not “good enough.”

Few of ERI’s Assessor Series subscribers are interested in job family statistics (mind in the microwave, feet in the freezer, half-way in between you are “average” ... for those who don’t have ovens). They are interested in specific jobs, occupations that are current, updated, and existent. These subscribers require that ERI identifies not only what specific jobs exist, but where they exist, what they are paid, and in what incumbent numbers they are found. ERI does this in a consistent, constant fashion allowing for jobs to wane (be compressed into others) and new jobs to appear in both its **Assessor Series**<sup>®</sup> and PAQ’s **enhanced Dictionary of Occupational Titles** (**eDOT**<sup>®</sup>). In 2004 ERI gave PAQ Services, Inc. (PAQ) its eDOT Skills Project so that eDOT might access real field job analyses from over a thousand of PAQ’s US clients. This inclusion added hundreds of new specific jobs for study, most technology and service based, along with hundreds of thousands of field, subject matter expert quality, job analyses records. Earlier, ERI had added thousands of new jobs to eDOT, jobs found multiple times in modern, privately-sponsored salary surveys. In 2005, after analyzing an extensive collection of health care salary surveys and other documents, many hundreds of new health care jobs also were added. And because of PAQ, the consequence is that ERI fileservers now house the mental and physical capacity measures, education, knowledge, and skills required for these specific jobs, along with standard updated job descriptions, task statements, demographics, and incumbent counts. These incorporated PAQ data are field job analyst quality measures; gold in the world of studying work.

Meanwhile, the Internet and advances in publicly available data have created multiple sources where employers, their locations’ addresses, numbers of employees, and industries in which they operate are known. ERI combines US data from almost a dozen different sources, including: state employer/government filings, credit agency records, US DOL benefit filings (Form 5500s), government contractor lists, SEC & IRS public files (8-Ks, 10-Ks, Form 990s, etc.), research compiled from yellow pages, and files from firms from whom ERI leases data. Merging, purging, and deleting duplications found in these multiple datasets, ERI creates a universe of US employers, their industry(ies) codes, numbers of employees (or ranges), recorded names of officers and directors, and locations of branch locations/offices. (Foreign employer lists are more easily attained; countries such as France make data/demographic filled rosters of corporations operating within their boundaries publicly available.) This sets the stage for another way to count and identify jobs (adding all employers’ incumbent numbers), one that in the US has three different audit checks with industry summation crosschecks.

Almost all countries (including the US) report job family populations within industries, so turning a company's employment matrix 90 degrees while knowing a county's probable distribution of job families within industries, and knowing specific jobs within a job family, one can predict a specific employer (of a size certain in a specific area/county and industry) with a "national norm profile" staffing pattern for that industry. In the US, PAQ's eDOT and ERI's Assessor Series allow further definition by parsing these job families into specific jobs (missing those few jobs, of course, that are not reported in either eDOT or the Assessor Series). Incumbent totals accumulated for potential employers as specific eDOT jobs (within their job families) are audited/checked to three different US Government sources (BLS CEW survey, DOL OES, ERI's long-time standard, and trended US 1990 – 2000 Census data). ERI is at a point where when given an employer in a location, the Assessor Series can estimate the employer's specific occupations held, its incumbent counts, their demographics (gender and race), along with the expected competitive pay norms and other associated labor costs. (Nationally, in the US in 2006, these four approaches sum and crosscheck to ~129 million Americans working at full-time specific jobs in ~1,400 NAICS/eSIC industry categories.)

### **Parsing Jobs within a Job Family**

Before ERI and PAQ had access to an archived (by month) accumulation of almost all job board listings (ERI's SalariesReview Combined Job Board Database), before listings of job titles held by workers' compensation claimants were known, and before the creation of ERI's Job Availability Survey, the parsing of specific jobs within a job family was purely mathematical. Some US Government O\*NET job families contain hundreds of unique specific jobs; others, such as receptionist and word processor, are "homogeneous" where minimal parsing is required. The methodology available was that of a "statistical complexity model" where more complex jobs (requiring higher mental and physical capacities) were distributed by pyramid forming equations. (The more complex mental and physical capacities of a job within a job family and the more demanding the skill and educational requirements, the fewer the expected number of incumbents. Early writers, PAQ's McCormick et al., 1974, described this as "natural selection within a job family.") Now frequency of occurrence of jobs found on job boards, frequency of job titles found on workers' compensation claim forms and ERI's Job Availability Survey all contribute to the ability to parse job counts within a job family. A fifth source exists, the frequency of "lay titles" reported on US Census Long Forms (the latter is not incorporated, as yet, in ERI analyses, but will be when that data is placed in the public domain). And ERI, with over 10,000 employer/subscribers, has a sixth source; our 10,000 subscribers tell us when and how our models are incorrect via a much used and useful 24/5 workday subscriber call center.

### **Job Boards, a New Source of Data**

ERI collects (mining this data with proprietary eSpideri software) Internet job postings (worldwide) and inventories these (now) millions of listings monthly by employer, industry, specific job posted (and accompanying skill, pay, and job demand data) and geographic location (county). Archive datasets exist for litigation where evidence of job listings in some historic month/year may be of interest (separate file bins/inventories contain "all jobs posted" for any month or time period). Job boards, admittedly, have terrible salary survey data (50% are general job postings where recruiting firms with temporary contract staffing divisions "troll" for resumes advertising attractive salary levels). Amidst this chaff, however, one finds a few excellent job descriptions, some (a very few) even US ADA compliant (with mental and/or physical capacities), and some with specific job titles with enough prose to accurately describe the primary duty and functions performed. But there is a dirty secret with job boards and it doesn't take long once you start working with them to understand (to see for yourself, click on the top banner "Find Jobs" at ERI's [www.salariesreview.com](http://www.salariesreview.com) and review a hundred listings). Many job postings are false (false, as in "false ceiling") and nothing more than recruiting firms building resume libraries for their temporary staffing divisions. Many other Job Board description postings are just as bad in their "generality."

Job Boards have also become the safety net for US corporations to show and prove that they are nondiscriminatory in their hiring practices. Companies go out of their way to make certain all their job openings are posted on the Internet, but only in a "general way." Generalized job descriptions, those without too much detail and certainly with no ADA compliant measures, allow organizations to still make the decision as to whom or who they don't hire. Few want to be faced with an applicant who exactly matches requirements, but who will not "fit" in their organization for qualitative reasons. This is especially obvious among federal contractors' job postings, organizations that must give preference to Veterans. The consequence is that the really good, complete job descriptions found on job boards are typically from city or county governments and those few private entities that are unaware of, or don't play, the "game." ERI finds this huge library of job postings useful for noting existence of jobs, measuring the vibrancy of the economy, and determining probable job family compositions. But when it comes to physical and mental job demand measures and true salary levels paid, this data is softer than quicksand.

### **Locations of these Jobs**

Addresses of employees/employers, disability claimants, or job searchers can be pinpointed using US geographic/address data and matched to the closest potential employers. For the job searcher or outplacement specialist, employers within xx miles of an individual's residence that are expected to employ a specific job can be identified. For disability determinations, employers with known jobs of certain physical and mental capacities within xx miles can be identified. Labor markets can be defined (and easily described via maps provided by sites such as Yahoo or Google). Competitors can be identified; probable staffing patterns can be estimated. In the US, this is accomplished by using the publicly available databases of the US Census Bureau's TIGER<sup>®</sup> System. (Any address can be assigned a longitude and latitude and with the known distance to the center of the earth, mileage between points is easily found after the calculation of the angle created at the earth's core.) Both PAQ's eDOT and ERI's Assessor Series allow for searches within a known radius of a specified office or residence address.

## What is a Job?

ERI and PAQ have adopted the DOT's definition of an "occupation" used for almost 70 years by professionals, courts, and experts; and have added a selection/use threshold based on the generally accepted "norms" of US Administrative Law (ALJ) courts. "Job" equals "occupation." When ERI talks of a specific job with an incumbent, it may use the term "position." This differs from O\*NET's "occupational groups" which are job groups, often called "job families" (eDOT also defines "occupational groups" with its first 3 digits of eDOT's 9 digit code). O\*NET states it has "800 occupations" (it misuses the term), the DOL/OES/BLS surveys combine data (roll up O\*NET stragglers) into 742 OES/SOC job families, while the US Census continues this roll-up into 471 Census Occupations (while adding an occupation, "Logisticians"). ERI's Assessor Series and PAQ's eDOT report on ~2,500 to ~10,000 specific occupations respectively (varying each Quarter by additions of new jobs, compressions of waning jobs). Each must have:

- A unique, non-industry specific job title.
- A unique "Primary Duty" requiring an identifiable skill, if existent.
- Two – three unique additional task statements (with related skills, abilities, and/or knowledge required)
- An ERI eSemantic low score of job match relevancy as compared to other specific eDOT occupations.
- An occupation must exist in counts exceeding 2,500 incumbents in the national economy for use in the Assessor Series.
- A job must be estimated to exist in 250 or more instances in the national economy to be included in eDOT (explaining why eDOT has more jobs than the combined Assessor Series' occupations and matching generally acknowledged, but unwritten, US Social Security Administration ALJ national guidelines). The estimation of a job's existence is based on data collected by:

### ERI's Job Availability Survey

Jobs are known to exist if:

- They are reported in published salary surveys with listed survey participant names and incumbent counts.
- Their job titles and/or specific descriptions are found on disability claim forms (California).
- They have been collected by ERI's eSpideri's datamining of specific job postings (SalariesReview's Find Jobs) and are complete, specific, and matched to a bona fide employing entity (matched to ERI's Potential Employer list); vague, general descriptions from "Company Unknown" are not analyzed.
- PAQ field job analyst input, including cybernetic use of eDOT, report the existence of these occupations and their work measures and duties as found in an on-site job analysis.

Additional evidence of a job's existence\* is noted, but not determined by:

- users of SalaryExpert's ePRO+ (which displays all eDOT positions) or PRO+ (which lists over 100,000 job titles), including the US Census Lay Titles. Visitor interest in job titles is noted along with their IP source.\*
- users of SalaryExpert's salary calculator (almost ½ million searches each month); this is the second most popular of the free data sites (and reports conservative Government job family salary data).\*
- requests for "new titles" whenever the eDOT PC program is first used (in a "submit process") and requests by ERI and PAQ subscribers, and
- inclusion in US Government listings (Census Lay Titles, etc., the former will move to the above filter when auditable aggregate numbers for each lay title are placed in the public domain).

(\*a review of these searches can be found anytime on ERI's Job Availability Survey's Daily Log.)

- Industry-specific segregations are made not only by job titles, but also via separate, complementary code designations traced to the before-mentioned government reports of job family industry patterns within specific employers (in the US, see the BLS – CEW, tied to NAICS codes, crosswalked to SIC codes). SIC codes are still used by the majority of industry and US non-statistical agencies like the US Securities & Exchange Commission. ERI has adopted a "fixed in time" SIC coding system which we label, "eSIC;" we will change over to NAICS totally when the US SEC and IRS NTEE codes are replaced (both are of critical importance to ERI salary research). Industry coding is in great disarray in America; case in point: the US SEC's use of SIC rather than NAICS.
- And "levels" within an occupation (1, 2, 3, etc.) are covered by the work measures like Specific Vocation Preparation (SVP) within eDOT. However, the Assessor Series uses levels to report competitive salaries, with the mid level being the eDOT equivalent (1, 2, 3, often has a "4" as the lead supervisory position; sequences might also be 1-5 plus a 6<sup>th</sup>, etc. In these cases the eDOT job would be Job Level 2 and 3 respectively.)\*\*

\*\*ERI's Assessor Series report pay "by level." PAQ's eDOT would treat jobs # 1-3 as one job with Job Level #2 = the "naked" Job Title (i.e., level 2, serving as an alternative title). As of April 2006, Salary Assessor users may toggle back and forth between reviewing jobs reported by level or by ERI's traditional experience/maturity curves. The default for US/Canadian applications is the latter. UK/EU applications default to the culturally based career/ occupation levels approach (not all jobs will have more than one level). Use the "Options" menu at the top of any Assessor (Salary, Executive Compensation, Nonprofit or HealthCare) to change this selection.

### PAQ's Sources – An Overview of Measuring Jobs

PAQ uses trained job analysts and its questionnaire (which includes the US Social Security Administration mental/cognitive measures found in Form SSA-4734BK-F4-SUP(8/85) and the complementing physical measure Form SSA-4734BK (1-89) effective (02-2004), the 8/23/04 amended job analyses questions of DOL's Part 541 FLSA exempt determinations, and skill-based pay application measures. Collected data (along with historic data collections of the past 15 years) are found online in PAQ's eDOT Skills Project reflecting:

- o Data from field job analyses (typically an organization's analyst, trained by PAQ and knowledgeable about that organization's structure and work content; i.e., a "subject matter expert") utilizing methodology accepted by the courts since the 1970s and
- o Users of eDOT PC software where changes to default job work measures are noted and recorded in PAQ's eDOT Skills Project databases (this is a cybernetic system: the more it is used, the better the data becomes).

### ERI's Sources – An Overview of Pricing and Valuing Jobs

ERI Economic Research Institute collects data regarding competitive rates of pay in 37 countries (including the US, Canada, UK and the EU). Data sources can be characterized as:

- o Optically character recognized (OCR) or pay data mined from the Internet from organization provided forms (in the US: SEC 8-Ks, 10-Ks, proxies, annual reports, Form 5500s, Form 990s/EZs/PFs, etc.). We will mention data mining of job postings, but this data is so corrupted by search firms trolling for resumes for their temporary staffing divisions that it is statistically worthless for most analysis purposes (skill requirements and identification of specific jobs are of more interest to ERI and PAQ).
- o Data collected via ERI's patented (March 2005) online interactive salary surveys (see: [www.salariesreview.com](http://www.salariesreview.com)). Each year, SalariesReview data becomes more and more robust, more and more used. Salary levels run 10% above survey levels, explained in part by the fact that the minimal amount of data mined from job boards that passes validity tests are included in SalariesReview's salary and cost-of-living surveys. Care is taken to not show data that might violate countries' privacy or anti-trust laws (including published US FTC 2005 Regulations, first effective in 1993).
- o Collected and analyzed published surveys (from trades, license agreements, where copyright laws allow) where "consensus" published norms might exist (a rule used by ERI since the mid '80s: "must exist in three or more published surveys.")\*\*\*
- o Large survey databases and other leased datasets (Statistics Canada, UK National Statistics, SEDAR.com, etc.) and other published data such as labor contracts or legislated pay norms (state of California union health care, The Netherlands pay schedule(s), Australian minimum rates, etc.).
- o Government data (UK, Canada, Portugal, etc., National Statistic Offices; in the US these include DOL OES, BLS CEW, Census earnings, and other non-copyrighted data sources). These typically conservative values (because US OES Prevailing Rates are for immigration purposes and that constituency has its goals also) can be found at the bottom of any free [www.salaryexpert.com](http://www.salaryexpert.com) Salary Calculator retrieval.

### SalaryExpert's Sources and Contribution

SalaryExpert's conservative, single source, job family modeled retrievals require 6 questions answered by inquirers (300k – 500k/month). The first question potentially identifies someone with job knowledge, the second contributes salary survey data to SalariesReview, and the third collects skills required/used in the position. 3 questions follow (rotating a 3 x 33 matrix) where the 99 eDOT job demand and work measures are displayed.

- o 2 questions are from the DOT's Selected Characteristics of Occupations work measures, scales unchanged.
- o The last is a "stress" measure, the mental cognitive questions found on SSA workpapers, Forms SSA-4734BK, etc. 26 of the eDOT's SCO physical job demands (word-for-word eDOT prose matches) are used to determine whether alternative jobs exist; 20 eDOT measurements are used in behavioral science reviews (~30% of SSA DI are mental/cognitive). Together they may affect two and one-half million SSA DI claimant respondents each year. See the "Form use" Record below to understand the magnitude of DOT work measures' use today as reported in the Federal Register:

***Physical Residual Functional Capacity Assessment and Mental --20 CFR 404.1545 and 416.945-- 0960-0431.***

*The information collected by form SSA-4734 is used in the adjudication of disability claims involving physical and/or mental impairments. The form provides the State Disability Determination Service (DDS) with a standardized data collection format to evaluate impairment(s) and to present findings in a clear, concise, and consistent manner. The respondents are State DDSs administering Title II and Title XVI disability programs. Type of Request: Extension of an OMB-approved information collection. (Public disclosure: required forms' time usage)*

	SSA-4734-BK	SSA-4734-SUP
Number of Respondents.....	1,625,095.....	796,770.
Frequency of Response.....	1.....	1.
Average Burden Per Response....	20 minutes.....	20 minutes.
Estimated Annual Burden.....	541,698 hours.....	265,590 hours.

<http://www.ssa.gov/regulations/articles/info-collect122.htm> 10/04/05

PAQ's (and others') research finds job analysts excellent judges of physical job measures, but poor gauges of "stress" found in a job. (What is stress to you may not be stress to another.) After 3 years of data gathering, these measures, contributed daily in the tens of thousands to the PAQ eDOT Skills Project, allow PAQ to report the average, expected job demands for SSA's 20 Mental Residual Capacity questions. Indeed, SalaryExpert's contributions should be judged by their uniqueness, not by the strength of their competitive salary data, which can be described as "only good enough for government purposes." These stress-related measures have no comparison alternative source in America. They are truly unique and someday worthy of much study. (PAQ's raw datasets, since their inception in 1967, have been available "free of charge" for doctoral candidates' research.)

### **Private Industry Quality Data – ERI Assessor Series**

In the mid 80's when ERI created the Assessor Series (and continued today), a single polynomial curve was generated for each Assessor Series job. (Picture a graph with the x-axis being the years 1977 .. 1978.... 1979 .... then to 1988 ... now to 2006 ... 2007 where a single source/survey's data for a job is shown as a "dot" with an incumbent count and a measure of variability (standard error, deviation, etc.). Picture 3 dots for 1977, 8 dots (surveys) for 1978, etc. This long-term study (curve cut through many years of dots of varying power) allows ERI to report a constant prediction, protected from a single year's variance created by any particular survey (a high or low dot/survey in 2006, for example). It takes powerful data to significantly alter an Assessor Series job value curve. (All these curves' slopes differ; for more discussion, see ERI's Salary Increase Survey found at [www.eri.com](http://www.eri.com) or accessed via the top of ERI's Platform Library CD-ROM. If they did not differ in their increase rates, one would only need to have purchased a salary survey in some ancient year and increase all jobs' values by a like percentage over subsequent years.)

\*\*\*Certain long-time Assessor Series jobs appear to be disappearing from survey reporting. Some 1980's jobs (such as Rotogravure Press Operator) have indeed disappeared, but a more likely explanation is that "salary surveys are disappearing." Picture a survey operation where \$80 of every \$100 is for covered fixed costs while \$10 exists for marketing and \$10 for profit. The US Government dealt these private surveys a terrible blow when in 1995 and 1996 they altered their OES employment survey to include wages (for immigration prevailing rate purposes). ERI saw an immediate cessation of many local and regional surveys (from Scottsbluff to Bellingham); eliminating 20% of a survey's subscribers eliminated the profit and sales funding. And the 2000s introduction of "free salary" data via the Internet did not help. Both well-intended sources like SalaryExpert.com (which reports conservative values based on the US and other government OES or OES-like surveys) or those other sites that exist to attract job search candidates (typically showing high values) have had a similar negative effect on private and local surveys. And government regulation has perhaps taken the largest toll. In the US, the September 15, 1993 Federal Trade Commission's safety zone directive that "*a survey must be managed by a legitimate third-party; the data provided must be more than three months old; and at least five organizations must report the data on which each statistic is based. No one data source can represent more than 25 percent of the statistic, etc.*" has had a chilling effect on salary survey firms that now know they can easily be part of anti-trust litigation (frivolous suits still require a defense; defend ten cases and win them all and a small firm will still be bankrupt). Today, ERI Assessor Series continues polynomial curves for some jobs known to exist, but where no known 2006 survey reports data (although in 1987 there were 3 or more surveys). Our hope would be that ERI's SalariesReview builds in its robustness to bridge this gap; we do not believe rational firms of any size will enter the "salary survey business" any time soon. Today, there is too much liability with no profit margin. (Many European countries are ahead of the US in this phenomenon; private salary surveys have all but disappeared in the UK, Germany, etc.)

A question to ask any supplier of estimates of competitive salary information is "where do you get your data?" Over the next ten years, ERI expects the trend of seeing fewer and fewer viable salary survey organizations and surveys to continue. Unless sources are optically reading, sponsoring their own surveys (such as SalariesReview.com, etc.), leasing identified databases and/or taking the time and resources needed to research legislated, union, and other sources, they will have to be doing the obvious: sewing the Emperor's Clothes or stealing their data.

### **EU Data along with US and Canadian Data in the Assessor Series**

ERI has been slowly building its data sources and improving the quality of data used by subscribers in the UK and Europe (Euro-using countries, plus Switzerland and Scandinavia). Most of this paper is US market pricing-centric, but the dynamics discussed are worldwide. ERI's methodology is the same, only the currency and the numbers differ. PAQ also offers its scoring services worldwide; its neutral culture orientation (measures behaviors, skills required, work measures rather than job tasks) is a reason why it is popular in the Arab and Eastern world. (Artificially valuing jobs with "job evaluation points" has all but disappeared in the US, but the most popular plan created for an eastern US bank in the 1940s prevails in southern Europe and South America. Some liken these plans to a virus planted within 2<sup>nd</sup> world corporate cultures. That said, there is a place for artificial value systems that model internally equitable rates, especially within organizations with ever changing tasks, where everyone does a bit of "this and that," where multiple unique jobs exist, and external competitive benchmark comparisons are impossible to determine.) As PAQ is to internal equity, ERI is to external competitiveness.

### **Summary - US**

In summary, ERI combines and contrasts derived employment population numbers that are specific to real employers to US Census data (updated 1990 to 2000 to present trend), OES job family and area populations, and the BLS CEW survey of county industry employment statistics. To derive job family distribution, ERI overlays these employers with the national expected staffing pattern for



that industry from the OES data found at: <http://www.bls.gov/oes/current/oesrci.htm#44-45> to proportion the CEW industry headcounts into SOC job families. Combined and contrasted with the sum of estimated employees in the created Potential Employer database (previously described), these sources provide estimates of industry employment, by county and SOC job family down to the specific potential employer. Sources include:

- Census (prior project) 1990 – 2000 - present
- CEW <http://www.bls.gov/cew/home.htm>
- OES <http://www.bls.gov/oes/current/oesrci.htm#44-45>
- Potential Employer totals sum (ERI's merged, purged, deleted duplicates database)

Then via PAQ's eDOT, ERI can segment this job family data into "specific jobs" (rather than O\*NET job families, which is where US government methodology ends). PAQ's eDOT contains ~10,000 unique specific occupations, including homogenous O\*NET jobs, specific jobs found posted on the Internet more than 250 times each year, jobs reported in salary surveys, jobs found on worker compensation claims, etc. Segmentation of these job families combines up to six different methodologies, including:

- PAQ's Complexity Model
- ERI's Job Availability Survey Frequency of Occurrence
- The eSpideri Job Board's Frequency of Occurrence

The consequence is that ERI and PAQ have something unique for 2006; something no one else in America has the ability to offer:

ERI/PAQ can estimate a "national staffing profile" for any of the over 12 million US organizations with > 10 employees; listing the specific eDOT jobs expected in that organization and their numbers (depending upon the employee size of that organization, industry, and area in which it resides).  
ERI/PAQ can also estimate their local pay for those specific jobs, their demographics (EEO-1 Report) and "job listing exposure" (potential to lose staff) and relate this data to an employer's or claimant's residence address.  
And we know the physical and mental capacities these jobs contain.

### **A New Survey Application and an Existing Survey Renamed**

As of April 2006, ERI has changed the name of the Compensation Comparables Assessor & Tax-Exempt Survey to a more simple Nonprofit Survey & Assessor (NS) and has broken out health care (from this survey and the Salary Assessor) to create a Health-Care Survey & Assessor (HS). Both contain the full range of positions, from CEO/Executive Director to the lowest paid (equivalent to a Salary Assessor, Consultant Edition); both contain model organizations NTEE/Industry, location/county and size/revenue or assets. ERI uses the term "survey" because much of what is shown can be sourced back to retrievable documents (one can review the source materials). With some pride ERI can ask, "What other survey reports data for 154,000 unique organizations in its data display, showing actual source documents?" Similarly, ERI's new Health Care Survey & Assessor is built on NS's health segment (NTEE codes E-H), data from SalariesReview surveys, and sources cited above. For areas that do not ignore the 1993 FTC antitrust safety zones previously discussed, local hospitals and health care providers should have great interest in this research. It is not that HS has more unique organizations represented, it is that the number of organizations represented is not 380 (typical for a survey) or 3,800; it is 38,000!

### **Other Applications – For ERI and PAQ Subscribers**

In 2006, each and every ERI Assessor Series application benefits from, or feeds data to, PAQ and ERI's studies of specific jobs. Examples include April (or later 2006) enhancements to all products:

#### **Relocation Assessor**

- New Office Relocate/Plant Screen/Tab Application
  - Models plant/office relocation labor cost comparisons in moving a plant or office containing specific types of positions, each with xx incumbents, from location "A" to location "B" anywhere in the world.
  - Assesses normal staffing/payroll for acquisition purposes, buying of a company, investing, moving, making a loan, etc.
  - Costs labor contracts or HR/organization changes (add a vacation day, change benefit coverages); in effect moving a company "up and down" by changing its compensation and HR practices related to labor costs.
  - Allows self-assessments of an's organization's design & staffing distributions by comparing them to the predicted national norm staffing distributions/jobs employed in any specific industry for an organization of like employee size.
- New Fixed and Variable Rate (FAVR) Analyses.

## Geographic Assessor

- New Census Screen/Tab
  - New required (2007) US EEO-1 reporting format of expected organization demographics by industry and location.

## Salary Assessor

- New Salary Planning Screen/Tab
  - Given an “n” number of employees and industry, a default fill-in of a salary planning sheet to initiate the process (with expected % salary increases tied to the job function norms found in the latest ERI Salary Planning Survey).

## Executive Compensation Assessor

- Organization Design Assessment
  - Utilizing the Benchmark List, one can compare an organization’s numbers and types of management and executive positions to national norm patterns for that specific industry and like employee size.

## Nonprofit Survey & Assessor

- New Salary Planning Screen/Tab
  - Given an “n” number of employees and industry, a default fill-in of a salary planning sheet to initiate the process (with expected % salary increases tied to the job function norms found in the latest ERI Salary Planning Survey).
- New Tracking of Donor/Fund Raiser/Contractor/Officer Relations Screen/Tab
  - Tracing/tracking of Directors, Officers, and Contractors and inter-relationships to the combined Potential Employers databases (found in the Consultant Edition only).

## Healthcare Survey & Assessor

- New Salary Planning Screen/Tab
  - Given an “n” number of employees and industry, a default fill-in of a salary planning sheet to initiate the process (with expected % salary increases tied to the job function norms found in the latest ERI Salary Planning Survey).

## enhanced Dictionary of Occupational Titles (eDOT)

- New Potential Employers Screen/Tab
  - Disability determination: identify not just estimates of populations of alternative jobs and give a laundry list of potential employers in a geographic area, **but list only those specific potential employers profiled to have the specific alternative jobs identified applicable to/for a specific claimant within xx miles of his/her residence.**
  - For disputes of whether there were jobs available, proof positive (frosting on cake) that job openings did exist as found in the archived Job Listings for the month/date and geographic location in question for any state month/time period.
- New Administrative Law (SSA) Edition
  - Meet the promise made by the LTD carriers with Attorney General Elliot Spitzer, NY and 47 other states in November 2004 to honor the outcome of a SSA Disability Determination unless error can be shown (“*must give significant weight to evidence of an award of Social Security disability benefits as supporting a finding of disability, unless the ..... have compelling evidence that the decision of the Social Security Administration was (i) founded on an error of law or an abuse of discretion, (ii) inconsistent with the applicable medical evidence, ...*”), pg 7. eDOT (Admin edition) predicts what the outcome of an SSA DI DDP might be; often a determination that will be made two to three years after a LTD carrier’s determination. eDOT contains the 46 residual capacity measures found in today’s SSA desk workpapers.
- Occupation, Employee Specific Alternative Job Listings
  - Meet promises UNUM’s recently made (October 2005) on behalf of the LTD carrier/industry in California, including a definition of disability determination that promises review of “occupations” and their “mental and physical capacities. (“*and during the another or any-occupation period shall be defined as: a disability that renders one unable to perform with reasonable continuity the substantial and material acts necessary to pursue his or her usual **occupation** in the usual and customary way and to engage with reasonable continuity in **another occupation** in which he or she could reasonably be expected to perform satisfactorily in light of his or her age, education, training, experience, **station in life, physical and mental capacity.** This change shall be made in all new California Contracts issued after the CSA Effective Date....*”), pg 14. The DOT may be “dead,” but less than six months ago UNUM agreed (the California State Attorney General claims for “the industry”) to look at “occupations,” and not “occupational groups” and mental and physical capacities, just as SSA continues to use its 4734 Forms in 2005 and 2006 to measure these RFCs.

The latter application, assisting in the identification of specific alternative jobs in which a person with lessened capacities might still work, is an inadvertent outcome of ERI's salary focused job count and population research efforts. Previous transferable skills applications (the present state of the art) were to identify a general list of jobs and a general list of potential employers filtered by only area or industry. As described, ERI and PAQ's job demographic and capacity measures allow for the identification and estimation of specific employers with probable applicable alternative specific jobs existent in calculable numbers (and within a stated distance from a specific claimant's residence), all with calculations with error rates.

Each month the eDOT Skills Project collapses DOT jobs no longer found in the economy into remaining eDOT data (so that historic data is not lost and we don't inadvertently, as we have and corrected, eliminate a job like "chicken debeaker" which still exists in the American economy). It should come as no surprise that unskilled, sedentary jobs are disappearing. The joke among PAQ analysts is that only the unskilled, sedentary job to remain in America is the "DOT Killer." But you can't joke about your opposition. As opponents, the "study of specific work" has politicians desiring to be reelected, executive administrations wishing to hide unacceptable unemployment rates, a major user group – career planning, admittedly finding the O\*NET a superior alternative, a judicial system where pain and emotion are appealing compared to fact (the latter being appealable), an SSA focused on "studying the problem," vocational experts who believe labor economic data is an "art not a science," and a legal system where attorneys are magnificently compensated under the status quo. Sometimes, however, Killers take on forces they can't stop. Perhaps, just perhaps, the DOT construct is just too good to die.

Today ERI's and PAQ's data are being used by many. We've been authorized to tell you that the IRS is a many-multiples of copies subscriber to our software and data. What might they do with what has been described? Well, if you know the probable distribution of work and labor costs of specific jobs and if there are unexpected funds being spent in an organizations' payroll or executive compensation, one can most likely also identify organizations with unexplained revenue. Interestingly, this application was first evidenced in the Baltic States which have become a center of world-wide money laundering. We've mentioned the New York State Attorney General Office; they too subscribe to multiple copies and have OK'd the mention of this fact. Among the vocational tradecraft, subscribers include the major LTD carriers with well over half a hundred subscriptions. This is only my extrapolated opinion based on my logic as a non-attorney, but private LTD carriers can't keep signing consent decrees with the likes of New York and California's State Attorney Generals without having real world data to rely upon. Their corporate coffers, funds to cover future claims, are otherwise built on sand. That said, for the record, ERI or I have no real idea how the Commissioners, Elliot Spitzer, or their troops, peers, or colleagues utilize our data and/or with whom our data and software applications are utilized. Neither PAQ nor ERI is engaged in fee-for-service consulting of any type. Our missions are to produce gold quality research data provided on a subscription basis. With 2<sup>nd</sup> year renewals, we have proof positive from our subscribers that our data, applications, and efforts accomplish this goal.

PAQ's and ERI's goals are to have 1,000 eDOT subscribers and 20,000 Assessor Series subscribers and with the latter, we are more than one-half way there. That's a business goal; we also have a professional goal. We believe this effort to count, identify, list, locate, mine, parse, price, and value specific jobs worthwhile to the fabric of the American society and economy. I'll end by again noting, "if the Killers of the US Government's study of specific jobs, the Killers of the DOT which had become the "language of work in the world," were correct, I wouldn't be standing here today. Corporate America is deadly serious when it comes to its staffing, pay structures and labor costs. Decisions are employee specific and job specific; they always have been, they always will be. Good management starts by assuring that your staffing has square pegs fitting in square holes and that you know the price, composition, and specific measures of each job. There will always be a reason to count, identify, list, locate, mine, parse, price, and value specific jobs even if federal governments won't.

I also believe that in the end, some twenty or thirty years from now, the decision to "kill the DOT" will be seen as a poor policy decision, one made at the highest levels. It will not be the first time such a policy decision has occurred; it will not be the last. No one will admit that they were involved or responsible. eDOT/DOT will survive because it is used; we at ERI and PAQ intend to see it survive until this fact becomes obvious to all.

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Speaker

**David J. Thomsen**

Dr. Thomsen is the founder of ERI Economic Research Institute (Redmond, WA), author of its Assessor Series products, a Senior Member of the American Society of Appraisers (ASA), and holds a Ph.D. in Management Analysis. Dave has served as a Principal with William M. Mercer, as Sr. Vice President of American Stores, Manager of Compensation for Dart Industries, and Managing Director of Baker, Thomsen Associates, an executive compensation firm providing litigation and governance service support. Since 2004 he has owned and managed PAQ Services, Inc. a unique firm engaged in field job analyses and the updating of an electronic Dictionary of Occupational Titles (eDOT). Semi-retired, he now advises ERI research efforts as they relate to **Assessor Series** programs and Reference Reports, PAQ Services' eDOT Skills Project (patents pending), and SalaryExpert's executive compensation retrieval systems - SalariesReview now patented. Author of both SHRM's original Accreditation Test in compensation & benefits and ACA's original quantitative certification course (WorldatWork and a CCP), he has authored hundreds of articles, a novel, Merger, Takeover Conspiracy published by Branden Press, and contributes to ERI's Quarterly Update newsletters.