


**Welcome**

SVP 9: Deriving Incidence of Jobs:  
aka – “The Numbers”



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**Vocational Expert Key Knowledge Areas**

- How does DOL and Census collect employment numbers
- What crosswalks from DOT to DOL and Census data
- What are SkillTRAN and US Publishing methods for estimating job numbers by DOT
- What are some combination/mixed methods used by VE's



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**CFR – Code of Federal Regulations**

[https://www.ssa.gov/OP\\_Home/cfr20/404/404-1566.htm](https://www.ssa.gov/OP_Home/cfr20/404/404-1566.htm)



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BUREAU OF LABOR STATISTICS

### Job Number Resources - Government

What Sources to use? – Must be Reliable, accepted  
 What is the Methodology? – Sample? - Survey? - Census?

**Bureau of Labor Statistics – Industry and Occupation Statistics:**

- Occupational Outlook Handbook - <https://www.bls.gov/oooh>
- Current Population Survey – <https://www.bls.gov/cps/cpsaat11.pdf>
- Occupational Employment Survey (OES) – <https://www.bls.gov/oes/#data>
- Occupational Requirements Survey (ORS)—<https://www.bls.gov/ncs/ors/home.htm>
- Long Term Projections - <https://www.bls.gov/emp>
- Current Employment Statistics (CES) - <https://www.bls.gov/ces>
- Quarterly Census of Employment and Wages – <https://www.bls.gov/cew>
- Business Employment Dynamics (BDM) - <https://www.bls.gov/bdm>
- County Business Patterns – <https://www.census.gov/programs-surveys/cbp.html>
- Labor Market Surveys – National, State, or Local ? Sample size?




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### US Census Sources of Labor Market Information

- American Community Survey ACS (U.S. Census) - <https://www.census.gov/programs-surveys/acs/>
- Public Use Micro Sample (U.S. Census) - <https://www.census.gov/main/www/pums.html>
- Current Population Survey (U.S. Census/U.S. Bureau of Labor Statistics) - <https://www.census.gov/programs-surveys/cps.html>
- Decennial Census (U.S. Census) - <https://www.census.gov/programs-surveys/decennial-census.html>
- Equal Employment Opportunity/Affirmative Action (State/U.S. Census) - <https://www.census.gov/topics/employment/equal-employment-opportunity-tabulation.html>
- Local Area Unemployment Statistics (State/U.S. Bureau of Labor Statistics) - <https://www.bls.gov/lau/>
- Population Estimates (U.S. Census) - <https://www.census.gov/topics/population.html>




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### Crosswalks between Occupational Data

**DOT to O\*NET**

- <http://www.onetonline.org/crosswalk/DOT/>

**O\*NET to 2010 Standard Occupational Classification (SOC)**

- <http://www.onetonline.org/crosswalk/SOC/>

**National Crosswalk Service Center → Analyst Resource Center**

- <http://www.xwalkcenter.org> → <http://www.widcenter.org/>




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### DOT to OES/SOC/Census

- Light and Sedentary unskilled occupations
- Use a Crosswalk to identify OES/SOC/Census code for the DOT
- Evaluate if OES/Census code accurately reflects DOT code
- Evaluate # of the DOT's per OES/Census
- Use a methodology to estimate




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### OES/SOC/Census to DOT

- Identify OES/SOC occupations most likely to contain Light and Sedentary unskilled occupations
- Use a Crosswalk to identify DOT(s) within the OES/SOC/Census code
- Evaluate if DOT occupations are representative of OES/Census code
- Evaluate # of the DOT's per OES/Census
- Use a methodology to estimate




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### Employment Numbers: Estimation Methods

- Quote the whole SOC / OES Group Number  
Valid when there is 1 DOT in a Group – n = 182
- Assume **equal** distribution across all DOTs  
**Possibly valid** (maybe up to 5 DOTs in a SOC group) when
  - There are very few DOTs in a group
  - They all seem equally probable – i.e. share similar: Description, Strength, SVP, and likely equally share employment in same industries.
- Use **proportionate** distribution based on weighted occupational density for each appropriate industry




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**SkillTRAN "Industry Context" - Occupational Density**

Similar to "Population Density":

- Frequency of occurrence of occupation(s)
- Specific Geographic Area (ZIP, City, County, MSA, State, Regional, National)

Refinements:

- Employers are categorized by industry (North American Industry Classification System – NAICS)
- Staffing pattern for occupations varies by industry and by company size
- Method to estimate data at the DOT level from aggregate data (i.e. OES / SOC)




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**SkillTRAN Industry Context Method**

- NAICS data is collected from employer respondents to the OES survey
- Staffing patterns are built by economists showing OES employment percentages by OES occupation and by NAICS industry
- Long Term Employment Projections use these staffing patterns with projected economic growth or decline by industry and occupation
- The percentage of OES employment by NAICS is Occupational Density
- SkillTRAN suggests the most relevant NAICS for each DOT
- Weight for other DOT occupations in each industry (equal weights now)
- The weighted value for a DOT in each relevant industry is totaled
- The summed density factor is multiplied by the total OES Employment Number to estimate employment at the DOT level for a location




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**Sources of Error**

- ESTIMATION process not = ACTUAL
- Greater validity at the national level
- Long-Term Projections do not reflect Short-Term / Recessionary Impact
- OES sample size may shrink – greater SEM for OES
- OES Occupational Groups are sometimes combined
- Does not consider collapse/combination of several DOTs into one new occupation
- Does not update the DOT, but it should help to identify some obsolete/obscure/low frequency occupations.




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### SkillTRAN Estimate vs. US Publishing

- Sedentary/Light – Unskilled Occupations
- SOC 43-5081 **Shipping, Receiving, and Traffic Clerks**

Five Light DOT Occupations only

DOT	Title	Industry	US Pub	ST – O.D.	US Pub	ST	Diff	Variance
222.287-014	Car Checker	Railroad	5.0%	0.730%	33,589	4,904	-28,685	-85.4%
222.687-022	Routing Clerk	Clerical	5.0%	6.083%	33,589	40,864	+7,575	+21.6%
			10.0%	6.813%	67,178	45,768	-21,410	-31.8%

**IARP** INTERNATIONAL ASSOCIATION OF REHABILITATION PROFESSIONALS

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### SkillTRAN Estimate vs. US Publishing

- Sedentary/Light – Unskilled Occupations
- SOC 43-5081 **Stock Clerks and Order Fillers**
- Five Light DOT Occupations only (of 38)

DOT	Title	Industry	US Pub	ST – O.D.	US Pub	ST	Diff	Variance
209.586-034	Marker	Retail						
221.587-018	Odd Piece Checker	Knitting						
221.587-022	Outsole Scheduler	Boot/Shoe						
222.687-022	Routing Clerk	Clerical						
229.587-018	Ticketer	Textile						

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### Historical Industry Employment

**Textile Mfg.**  
Historical Employment from 1980 to 2018 (Employment in thousands)

**Rail Transport**  
Historical Employment from 1980 to 2018 (Employment in thousands)

**Footwear Mfg. Leather Products Misc. Non-Durable**  
Historical Employment from 1980 to 2018 (Employment in thousands)

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### Increasing Remands re: Job Numbers

- July, 2018 – 7<sup>th</sup> Circuit –US District Appeals– Chavez  
re: Equal Distribution not explained/defended well
- Sept, 2018 – US Supreme Court – Biestek  
re: Methods/Expert Knowledge of the VE –  
“Prove it. Document it. Show me everything!”



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### Mixed Method Estimating #1

- Using SkillTran to look up Census Codes and % of fulltime employment
- Then taking that information over to US Publishing and finding the Census code # of jobs within the DOT SVP and exertional level then take a reduction for full time employment
- Verify the numbers and occupations on the BLS website



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### Mixed Method Example #1 cont.

311.472-010 FAST-FOODS WORKER

- Light /SVP 2
- Census Code 405
- 50.8% are full-time
- Census Code 405 = Combined Food Preparation and Serving Workers, Including Fast Food
- 1,528,635 Light Unskilled in US - 49.2% = approximately 776,546



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### Mixed Method Example #2

US Census Industry Code #334 Computer Electronic Product Manufacturing  
 In the US there are 877,469 individuals employed in this industry and in MA there are 47,063  
 Skilltran's Estimate by DOT is 332 in the US and 4 statewide in MA  
 US Publishing by DOT is 149 in the US and 1.5 statewide in MA




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### Mixed Method Example #2

**ELECTRONICS WORKER**= Light SVP 2  
**DOT**= 726.687-010  
**BLS Crosswalk** = SOC/OES #51-9999  
**#DOT in this SOC** = 1587  
**OES JOB NUMBERS** for #51-9999 Production Workers-all other  
 US 218,740  
 MA 2,350




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### Mixed Method Example #2

Does the BLS/OES classification properly reflect the DOT classification?  
 For Electronics Worker-- this occupation likely included in all of the following OES groups

OES CODE	TITLE	# DOT TITLES	US EMPLOY	MA EMPLOY
51-2022	Electronic Assemblers	61	197,500	6,690
51-2023	Electromechanical Assemblers	10	197,500	2,910
51-2092	Team Assembler	2	1,006,980	16,170
51-2099	Assemblers all other	28	270,950	4,540
51-9141	Semi Conductor Processors	30	21,380	910




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### Mixed Method Example #3

- BLS/ORS survey to replace use of DOT classification
- Combined project of SSA and BLS to expand the use of National Compensation Survey (NCS) program conducted by BLS.
- The ORS gathers job-related information regarding physical demands, environmental conditions, mental and cognitive demands, and vocational preparation requirements of jobs by BLS labor economists.
- Most data is collected via survey with annual onsite observations of selected occupations
- First data set produced November 2017 (available for download)
- Data is collected by SOC/OES code so it still requires VE to estimate by skill, exertion and hypothetical RFC
- Annually updated, representative survey methodology
- Plan to provide more detail within SOC groups with significant variation in skill and exertion.




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### Mixed Method Example #3

Use of the Occupational Requirements Survey (ORS), OES job estimates and VE analysis

[www.bls.gov/oes\\_2017](http://www.bls.gov/oes_2017)

SOC/OES CODE	OCC. TITLE	TOTAL EMPLOYMENT
99-3031	Ushers, Lobby Attendants, and Ticket Takers	124,710

SOC/OES CODE	DOT CODE/ TITLE	STRENGTH	SVP	RML
99-3031	944 667-010 TICKET TAKER	L	2	212
99-3031	944 677-010 PRESS-BOX CUSTODIAN	L	2	212
99-3031	944 677-014 USHER	L	2	211
99-3031	949 679-010 DRIVE-IN THEATER ATTENDANT	L	2	212
99-3031	949 677-018 CHILDREN'S ATTENDANT	L	2	211




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### Mixed Method Example #3

Selected Variables from the ORS survey 2017 [www.bls.gov/ors](http://www.bls.gov/ors)

ORS 2017 SURVEY DATA for Ushers, Lobby Attendants, and Ticket Takers 99-3031

Physical demands	
Climbing ramps or stairs (work-related) is required	82.9
Communicating verbally constantly is required	66.9
Communicating verbally is required	100.0
Fine manipulation is required	89.9
Fine manipulation: one or both hands is required	54.4
Gross manipulation is required	100.0
Gross manipulation: one or both hands is required	75.9
Lifting/carrying no weight is required, constantly	54.0
Lifting/carrying negligible weight is required, frequently	73.8
Lifting/carrying up to 10 lbs is required, occasionally	95.2
Lifting/carrying up to 10 lbs is required, seldom	65.0
Pounds maximum weight lifted/carried, mean	15.35
Reaching at/below the shoulder is required, occasionally	46.7
Hours of standing/walking, mean	4.91
Stooping is required	79.0




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### Mixed Method Example #3

Selected Variables from the ORS survey 2017 [www.bls.gov/ors](http://www.bls.gov/ors)

**ORS 2017 SURVEY DATA** for Ushers, Lobby Attendants, and Ticket Takers 39-3031

	% required
Cognitive and mental requirements	
Adaptability: Work tasks: work tasks change less than monthly, including never	100.0
Decision-making: type of decision making is predetermined actions	95.6
Other contacts: Frequency of contact: frequency of contact with other contacts is continuous	75.9
Other contacts: Type of interaction with other contacts is factual info exchange	83.2
Pace of work: Faster/slower work periods	100.0
Regular contacts: Frequency of contact: continuous	55.3
Regular contacts: Type of interaction: factual info exchange	52.7
Education, training, and experience	
Literacy required	53.6
Minimum education level is none	53.6
SVP: is short demonstration only	53.6
Environmental conditions	
Not exposed to extreme cold	100.0
Not exposed to moderate Noise intensity level	66.2




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### Summary

- **HAVE A METHODOLOGY and be able to explain it**
- Be able to explain that there are 12,761 DOT codes but labor market data is collected into:
  - 974 O\*Net codes
  - 867 BLS SOC (SOC 2018)
  - 539 Census codes (including military codes)
- Understand how BLS collects data by occupation and Census collects data from individuals
- Do not testify that the source of the numbers is another VE, a software program, or professional experience alone --they can be sources of a methodology not the job numbers.




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