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Evaluating Triple-Issued Food Vouchers as a California WIC Program Marketing Tool

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As a provider of low-income food assistance, the Women, Infants, and Children (WIC) Supplemental Nutrition Program has an interest in using strategies that minimize barriers for persons qualified to receive its services.

Participants normally are required to visit WIC offices every one or two months to receive food vouchers (food instruments) appropriate to their specific nutritional needs. These vouchers are redeemable during a specified 31-day period at participating grocery stores. The California WIC Program's new triple-issue policy in some cases permits WIC participants to receive their food vouchers for three months at a time, resulting in fewer office visits.

It is expected that this triple-issuance policy will make the WIC program more convenient and improve participation. However, fewer office visits, with less opportunity for face-to-face interaction with WIC staff, could have a detrimental effect on participation.

Research Methodology

This study uses food voucher redemption data from the California WIC Program's Integrated Statewide Information System (ISIS). Redemption rates for vouchers redeemable in the month concurrent with the office visit will be compared to redemption rates for vouchers redeemable in the first and second months after the office visit. Such redemption variations, as well as the degree to which triple-issuances are actually used, will be compared for selected segments of the total California WIC participation population.

The results of this study will be useful in helping the California WIC program work with grocers to more efficiently serve the needs of its various participant groups. If significant variations in re-

demption rates tend to relate to issuance-redemption time frames in any participant-population segments, changes to present food-voucher issuance and redemption practices may be warranted.

Preliminary Analysis

Table 1 shows issuance and redemption patterns for all food instruments whose valid redemption periods began in July 2001. Column A shows the demographic groups that were used for the redemption-rate comparison in this preliminary study. Primarily English-speakers are those who indicated English as their language preference when they applied for WIC program certification. Limited English-speakers are those who indicated a language other than English as their language preference. WIC-certified participants designated as rural are those who live in a zip code with fewer than 10,000 food-instrument issuances that is a substantial distance from major population centers. For the purposes of this study, all other WIC participants will be considered as urban.

Column B shows total food instruments issued in July 2001 with a valid redemption period in July 2001. Column C shows food instruments issued in June 2001 with a valid redemption period in July 2001. Column D shows food instrument issued in May 2001 with a valid redemption period in July 2001, July being the second month after the office visit, indicating the occurrence of triple issues. Column E shows the percentage of issues redeemed in July that are triple issues.

Columns F, G, and H represent percentages of food instruments that are actually redeemed for each issue month. Column I shows the difference between food instrument percentages redeemed in the month of issuance and the second month after the office visit, which will be referred to herein as the redemption attrition rate.

Column E shows that 11.64 percent of all California WIC food instruments redeemed in July 2001 were issued in May 2001. A 33-percent value for

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this second-month total percentage would indicate that virtually all food instrument packages were triple issued (where everyone would leave an office visit with food instruments divided equally among the three possible valid redemption periods). This second-month-issue percentage is actually lower in rural areas than in urban areas. Previous research (Matthews 2000) has shown that redemption rates for limited English-speakers are consistently higher than those for primarily English-speakers. Columns F, G, and H show consistently higher limited-English-speaking food-instrument redemption rates in the given valid redemption period, regardless of issue month. Additionally, the limited English-speakers tend to have lower redemption attrition rates than the primarily English-speakers. Rural-food instrument redemption rates tend to be slightly lower than urban food-instrument redemption rates. Some calculations based on the figures presented in Table 1 show that 56.84 percent of food instruments issued to urban residents went to limited English-speaking households. For rural residents, the limited English-speaking percentage was only 41.88 percent. Some previous research (Matthews 2001) has also found proportionately fewer limited-English-speaking WIC participants in rural areas than in urban areas. The limited-English-speaking WIC participants who reside in rural areas also tend to be concentrated in relatively few counties.

In order to test these apparent trends for statistical significance the *Statistical Analysis System* (SASO) categorical modeling procedure (CATMOD) was used to estimate the degree to which issuance month, language preference, and rural or urban location might affect a WIC participant's propensity to redeem a food instrument, based on this ISIS data (SAS Institute, Inc., 1989).

CATMOD uses a form of linear-regression analysis that estimates parameters for categorical dependent variables based on categorical independent variables. This particular model was designed so that an estimated parameter's sign would indicate whether the presence of a given issuance month, language preference, or rural or urban location would be associated with a greater or lesser redemption likelihood of a food instrument. Parameters estimated by CATMOD are then used as guides for further investigation.

Table 1. California WIC Food-Instrument Summary. Valid Redemption Period Beginning July 2001.

(A) Participants' Demographic Background	(B) FIs Issued 1-Jul	(C) FIs Issued 1-Jun	(D) FIs Issued 1-May	(E) May as % of Total* (D/(B+C+D))	(F) Jul 01 Issued Redemption Rate	(G) Jun 01 issued Redemption Rate	(H) May 01 issued Redemption Rate	(I) Attrition Rate (F - H)
Primarily English								
Rural	332,647	124,878	29,651	6.09%	85.84%	84.33%	83.28%	2.55%
Urban	1,472,076	583,627	236,648	10.32%	86.56%	85.09%	84.29%	2.27%
Total	1,804,723	708,505	266,299	9.58%	86.43%	84.95%	84.18%	2.25%
Limited English								
Rural	221,539	99,818	29,626	8.44%	92.55%	91.78%	91.47%	1.08%
Urban	1,798,485	800,684	420,165	13.92%	93.09%	91.92%	91.71%	1.38%
Total	2,020,024	900,502	449,791	13.35%	93.03%	91.91%	91.69%	1.34%
Total	3,824,747	1,609,007	716,090	11.64%	89.91%	88.84%	88.90%	1.02%

* A value of 33 percent in this column would indicate maximum possible triple issuing.
Source: ISIS Data—See Text.

Figure 1
California WIC Food Instruments
Valid Period Beginning July 2001

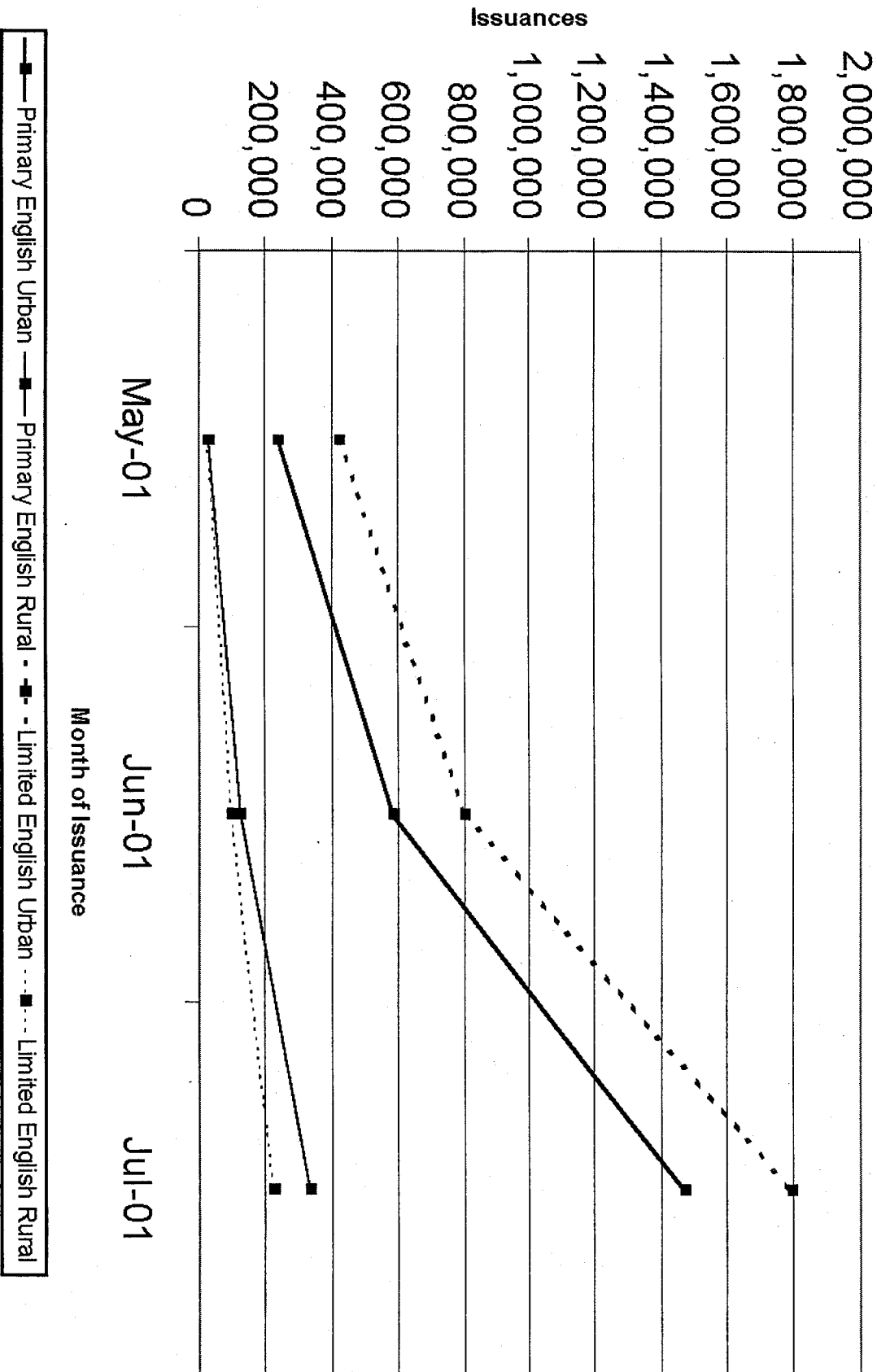
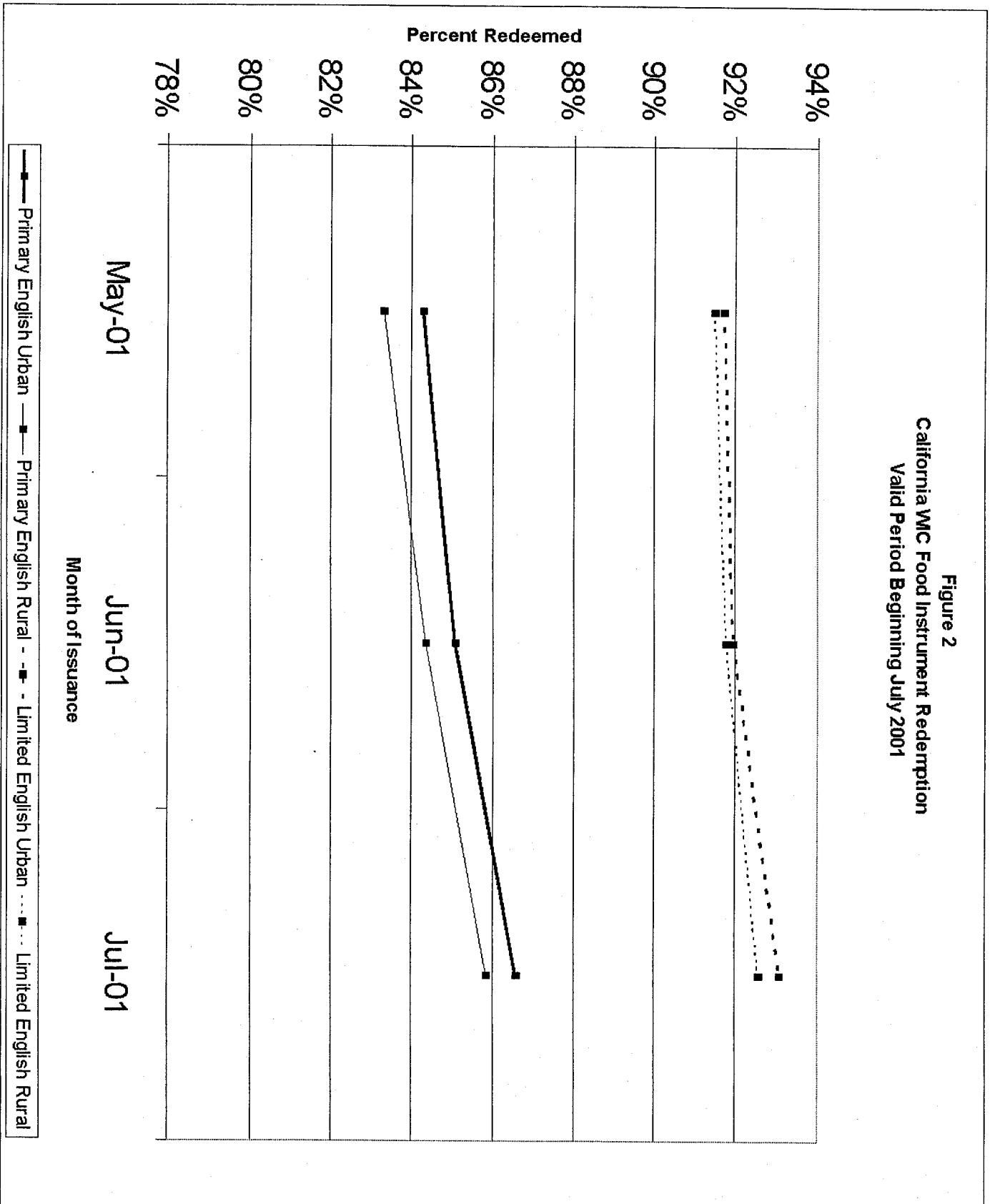


Figure 2
California WIC Food Instrument Redemption
Valid Period Beginning July 2001



**Table 2. Estimated Parameters for Issuance Month, Language Preference, and Urban/Rural Location as They Affect California WIC Food-Instrument Redemption Probability*
Valid Redemption Period Beginning July 2001.**

Parameter	Primarily English Only	Limited English Only	All Food Instruments
Issuance before July 2001	-0.013	-0.00732	-0.0102
Language Pref Not English			0.0359
Rural Location	-0.00415	-0.00152	-0.00284

*All parameters were found significant at the 95-percent-confidence level; negative value is associated with lesser probability of redeeming a given food instrument; positive value is associated with greater probability of redeeming a given food instrument. Source: ISIS data—see text.

The parameter values estimated from July 2001 California WIC food instrument redemption data are summarized in Table 2. Because rural areas tend to be home to proportionately fewer limited-English-speaking WIC participants, there is reason to expect that multi-colinearity may exist; it would not be possible to tell if the lower redemption rates in rural areas are the result of rural conditions or the absence of limited English-speakers. Therefore, CATMOD was run on one sub-data set containing only primarily English-speakers and on another containing only limited English-speakers. An additional run was made on the whole dataset. Table 2 shows that issuance month (the indicator of an issuance from an office visit before July 2001) has a significant negative effect on food-instrument redemption regardless of language preference. Rural location similarly affects food-instrument redemption rates.

Figure 1 illustrates the number of triple issues (indicated by May 2001 issuances redeemed in July 2001) to the demographic groups under consideration in this preliminary analysis.

The two lower lines in Figure 2 represent redemption rates for primarily English-speakers. These primarily English-speakers' redemption rates are consistently lower in rural areas than in urban areas; in both cases, redemption rates tend to decline the further in advance the instruments are issued. These redemption rate differences are slight but follow patterns that are consistent enough to be statistically significant, as indicated in Table 2. The two upper lines in Figure 2, representing higher redemption rates for limited English-speakers, follow similar patterns.

Preliminary Conclusions—Areas to Investigate as this Study Progresses

Triple issuing accounts for about one-third of all WIC food-instrument package issuance in California, given the 11.64 percent of second-month-issuances and the maximum possible second-month-issuances of 33 percent.

Food-instrument redemption rates and redemption-attrition rates can be used as indicators of shopping practices among various segments of the WIC participant population, including but not limited to linguistic group and rural or urban residence. Some other possible factors influencing shopping practices that might be investigated would include nutrition, education, attendance, and prevailing health-risk records for these same demographic groups. Issuance month, language preference, and rural or urban location have all been found to have a statistically significant effect on food-instrument redemption, suggesting that the statistical methodology presented herein may be useful for further research in this area.

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