Scanner Data, Product Churn and Quality Adjustment

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Abstract:

High technology products are characterized by the rapid introduction of new models and the corresponding disappearance of older models. The paper addresses the problems associated with the construction of price indexes for these products. Several methods for the quality adjustment of product prices are considered: hedonic regressions that use either product characteristics or the product itself (Time Product Dummy regressions). The paper also considers regressions where the economic importance of products is taken into account (weighted versus unweighted regressions). Finally, traditional index numbers are calculated that do not make any special adjustments for quality change. The various approaches are implemented using Japanese price and quantity data on laptop sales in Japan for the 24 months in the years 2020-2021. Somewhat surprisingly, the "best" hedonic regression price index was virtually identical to the "best" traditional index.

Key Words

Quality adjustment, hedonic regressions, Predicted Share similarity linking, economic approach to index number theory.

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C32, C43, D20, D57, E31.

1. Introduction.

An increasing number of business firms are willing to share their price and quantity data on their sales of consumer goods and services to a national (or international) statistical office. These data are often referred to as scanner data.

Some scanner data involves high technology products which are characterized by product churn; i.e., the rapid introduction of new models and products and the short time that these new products are sold on the marketplace. This study will look at possible methods that statistical offices could use for quality adjusting this type of data. Our empirical example will use data on the sales of laptops in Japan.

A standard method for quality adjustment is the use of hedonic regressions. These hedonic regressions regress the price of a product (or a transformation of the price) on a time dummy variable and either on a dummy variable for the product or on the amounts of the price determining characteristics of the product. The first type of model is called a Time Product Dummy Hedonic regressions while the second type of model is called a Time Product Characteristics Hedonic regression. The theory associated with these two classes of model will be discussed in sections 2 and 3 below. In particular, we will relate each hedonic regression to an explicit functional form for the purchaser utility functions.

Section 4 discusses our laptop data for Japan which covers the 24 months in 2020 and 2021. The empirical hedonic regressions studied in this section are Time Product Characteristics type regressions. We used characteristics data on 6 separate laptop characteristics in this section. We will consider both unweighted (or more properly, equally weighted) least squares regression models with characteristics in this section. This section draws on the theory explained in section 3. We will also consider the use of a hedonic regression that uses all of the data in a panel of data and the use of repeated hedonic regressions that use only the data of two consecutive periods and the results of these separate regressions are chained together to generate the final index, which is called an Adjacent Period Time Dummy Characteristics index.

Section 5 draws on the theory explained in section 2; i.e., we consider weighted and unweighted Time Product Dummy hedonic regressions in this section. We also consider panel regressions versus a sequence of bilateral regressions that utilize the price and quantity data for two consecutive periods. The latter type of model can be implemented in real time and is called an Adjacent Period Time Product Dummy hedonic regression model.

Section 6 considers alternatives to hedonic regression models based on standard index number theory; i.e., maximum overlap chained Laspeyres, Paasche and Fisher indexes are computed in this section. We also compute the Predicted Share Similarity linked price indexes which have only been developed recently. This new methodology will be explained in section 6.

Section 7 lists some tentative conclusions that we draw from this study.

2. Hedonic Regressions and Utility Theory: The Time Product Dummy Hedonic Regression Model.

The problem of adjusting the prices of similar products due to changes in the quality of the products should be related to the usefulness or utility of the products to purchasers. Each product in scope has varying amounts of various *characteristics* which will determine the utility of the product to purchasers. A *hedonic regression* is typically based on regressing a product price (or a transformation of the product price) on the amounts of the various price determining characteristics of the product. An alternative hedonic regression model may be based on regressing the product prices on product dummy variables; i.e., each product has its own unique bundle of price determining characteristics which can be represented by a product dummy variable.[1] Each of these hedonic regression models can be related to specific functional forms for purchaser utility functions. In this section, we consider the second class of hedonic regression models and in the following section, we consider the first class of hedonic regression models that regress product prices on product characteristics.

Assume that there are N products in scope and T time periods. Let $p^t \equiv [p_{t1},...,p_{tN}]$ and $q^t \equiv [q_{t1},...,q_{tN}]$ denote the (unit value) price and quantity vectors for the products in scope for time periods t = 1,...,T.[2] Initially, we assume that there are no missing prices or quantities so that all prices and quantities are positive. We assume that each purchaser of the N products maximizes the following *linear function* f(q) in each time period:

(1) $f(q) = f(q_1,q_2,...,q_N) \equiv \Sigma_{n=1}^N \alpha_n q_n \equiv \alpha \cdot q$

where the α_n are positive parameters, which can be interpreted as quality adjustment factors. Under the assumption of utility maximizing behavior on the part of each purchaser of the N commodities and assuming that each purchaser in period t faces the same period t price vector p^t,[3] it can be shown that the aggregate period t vector of purchases q^t is a solution to the aggregate period t utility maximization problem, $\max_q \{\alpha \cdot q : p^t \cdot q = e^t ; q \geq 0_N\}$ where e^t is equal to aggregate period t expenditure on the N products. The first order conditions for an interior solution, q^t, λ_t to the period t aggregate utility maximization problem are the following N+1 equations, where λ_t is a Lagrange multiplier:

(2) $\alpha = \lambda_t p^t$;
(3) $p^t \cdot q^t = e^t$.

Take the inner product of both sides of equations (2) with the observed period t aggregate quantity vector q^t and solve the resulting equation for λ_t. Using equation (3), we obtain the following expression for λ_t:

(4) $\lambda_t = \alpha \cdot q^t / e^t > 0$.

Define π_t as follows:

(5) $\pi_t \equiv 1/\lambda_t$.

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[1] This alternative class of models is more general than the first class so one could ask why should we consider estimating the characteristics model in place of the time product dummy variable model? Product churn may be so great that there are not enough degrees of freedom to accurately estimate the product dummy variables. Consider as a limiting case where every product is a new product in each period. The time product dummy regression model cannot be estimated in this case. Secondly, a new improved product loaded with useful characteristics may not cause older products to exit the market immediately due to

[2] The analysis in this section follows that of Diewert (2022; section 5).

[3] These are strong assumptions but strong assumptions are required in order to relate hedonic regression models to the utility of the products in scope.

Divide both sides of equations (2) by λ^t and using definition (5), we obtain the *basic time product dummy estimating equations* for period t:[4]

(6) $p_{tn} = \pi_t\alpha_n$; $t = 1,\ldots,T$; $n = 1,\ldots,N$.

The period t aggregate price and quantity levels for this model, P^t and Q^t, are defined as follows:

(7) $Q^t \equiv \alpha \cdot q^t$;
(8) $P^t \equiv e^t/Q^t$
$= \pi_t$

where the second equation in (8) follows using (4) and (5). Thus equations (6) have the following interpretation: the period t price of product n, p_{tn}, is equal to the period t price level π_t times a quality adjustment parameter for product n, α_n.[5]

At this point, it is necessary to point out that our consumer theory derivation of equations (6) is not accepted by all economists. Rosen (1974) and Triplett (1987) (2004) have argued for a more general approach to the derivation of hedonic regression models that is based on supply conditions as well as on demand conditions. The present approach is obviously based on only consumer (or purchaser) preferences. This consumer oriented approach was endorsed by Griliches (1971; 14-15), Muellbauer (1974; 988) and Diewert (2003a) (2003b). Of course, the functional form assumptions which justify the present consumer approach are quite restrictive but, nevertheless, it is useful to imbed hedonic regression models in a traditional consumer demand setting.

Empirically, equations (6) are unlikely to hold exactly. Following Court (1939), we assume that the exact model defined by (6) holds only to some degree of approximation and so we add error terms e_{tn} to the right hand sides of equations (6). The unknown parameters, $\pi \equiv [\pi_1,...,\pi_T]$ and $\alpha \equiv [\alpha_1,...,\alpha_N]$, can be estimated as solutions to the following (nonlinear) least squares minimization problem:

(9) $\min_{\alpha,\pi} \Sigma_{n=1}^{N} \Sigma_{t=1}^{T} [p_{tn} - \pi_t\alpha_n]^2$.

However, Diewert (2023) showed that the estimated price levels π_t^* that solve the minimization problem (9) had unsatisfactory axiomatic properties. Thus we follow Court and take logarithms of both sides of the exact equations (6) and add error terms to the resulting equations. This leads to the following *least squares minimization problem*:[6]

(10) $\min_{\rho,\beta} \Sigma_{n=1}^{N} \Sigma_{t=1}^{T} [\ln p_{tn} - \rho_t - \beta_n]^2$

[4] This model dates back to Court (1939; 109-111). He transformed these equations by taking logarithms of both sides of equations (6) and adding error terms. Diewert (2003b) (2023a) considered the index number implications of making alternative transformations of the basic equations (6) and endorsed Court's transformation in the end.
[5] Note that α_n is the marginal utility to a purchaser of a unit of product n for $n = 1,\ldots,N$. It can be shown that the period t price index π_t is equal to $c(p^t)$ where $c(p)$ is the unit cost function that is dual to the utility function $f(q)$; see Diewert (1974).
[6] This model is an adaptation of Summer's (1973) country product dummy model to the time series context. See Aizcorbe, Corrado and Doms (2000) for an early application of this model in the time series context.

where the new parameters ρ_t and β_n are defined as the logarithms of the π_t and α_n; i.e., define :

(11) $\rho_t \equiv \ln\pi_t$; t = 1,...,T;
(12) $\beta_n \equiv \ln\alpha_n$; n = 1,...,N.

However, the least squares minimization problem defined by (10) does not weight the log price terms $[\ln p_{tn} - \rho_t - \beta_n]^2$ by their *economic importance* and so consider the following *weighted least squares minimization problem*:[7]

(13) $\min_{\rho,\beta} \Sigma_{n=1}^{N} \Sigma_{t=1}^{T} s_{tn}[\ln p_{tn} - \rho_t - \beta_n]^2$

where s_{tn} is the expenditure share of product n in period t. The first order necessary conditions for $\rho^* \equiv [\rho_1^*,...,\rho_T^*]$ and $\beta^* \equiv [\beta_1^*,...,\beta_N^*]$ to solve (13) simplify to the following T equations (14) and N equations (15):[8]

(14) $\rho_t^* = \Sigma_{n=1}^{N} s_{tn}[\ln p_{tn} - \beta_n^*]$; t = 1,...,T;
(15) $\beta_n^* = \Sigma_{t=1}^{T} s_{tn}[\ln p_{tn} - \rho_t^*]/(\Sigma_{t=1}^{T} s_{tn})$; n = 1,...,N.

Solutions to (34) and (35) are not unique: if $\rho^* \equiv [\rho_1^*,...,\rho_T^*]$ and $\beta^* \equiv [\beta_1^*,...,\beta_N^*]$ solve (14) and (15), then so do $[\rho_1^*+\lambda,...,\rho_T^*+\lambda]$ and $[\beta_1^*-\lambda,...,\beta_N^*-\lambda]$ for all λ. Thus we can set $\rho_1^* = 0$ in equations (15) and drop the first equation in (14) and use linear algebra to find a unique solution for the resulting equations.[9] Once the solution is found, define the estimated *price levels* π_t^* and *quality adjustment factors* α_n^* as follows:

(16) $\pi_t^* \equiv \exp[\rho_t^*]$; t = 1,...,T; $\alpha_n^* \equiv \exp[\beta_n^*]$; n = 1,...,N.

Note that since we have set $\rho_1^* = 0$, $\pi_1^* = 1$. The price levels π_t^* defined by (16) are called the *Weighted Time Product Dummy price levels*. Note that the resulting *price index* between periods t and τ is defined as the ratio of the period t price level to the period τ price level and is equal to the following expression:

(17) $\pi_t^*/\pi_\tau^* = \prod_{n=1}^{N} \exp[s_{tn}\ln(p_{tn}/\alpha_n^*)]/\prod_{n=1}^{N} \exp[s_{\tau n}\ln(p_{\tau n}/\alpha_n^*)]$; $1 \le t, \tau \le T$.

If $s_{tn} = s_{\tau n}$ for n = 1,...,N, then π_t^*/π_τ^* will equal a weighted geometric mean of the price ratios $p_{tn}/p_{\tau n}$ where the weight for $p_{tn}/p_{\tau n}$ is the common expenditure share $s_{tn} = s_{\tau n}$. Thus π_t^*/π_τ^* will not depend on the α_n^* in this case.

Once the estimates for the π_t and α_n have been computed, we have two methods for constructing period by period price and quantity levels, P^t and Q^t for t = 1,...,T. The π_t^* estimates can be used to form the aggregates

[7] Rao (1995) (2004) (2005; 574) was the first to consider this model using expenditure share weights; see also Diewert (2004). However, Balk (1980; 70) suggested this class of models much earlier using somewhat different weights. For the case of 2 periods, see Diewert (2004) (2005a) and de Haan (2004a).

[8] If information on expenditures or quantities is not available, then the weighted least squares problem is replaced by the unweighted least squares problem (10). The first order conditions for the simplified problem (10) are given by (14) and (15) where the shares s_{tn} are replaced by the numbers 1/N for all t and n. In this unweighted case, the price index defined by (17) collapses down to a Jevons index.

[9] Alternatively, one can set up the linear regression model defined by $(s_{tn})^{1/2}\ln p_{tn} = (s_{tn})^{1/2}\rho_t + (s_{tn})^{1/2}\beta_n + e_{tn}$ for t = 1,...,T and n = 1,...,N where we set $\rho_1 = 0$ to avoid exact multicollinearity. This is the procedure we used in our empirical work below. Iterating between equations (14) and (15) will also generate a solution to these equations and the solution can be normalized so that $\rho_1 = 0$.

using equations (18) or the α_n^* estimates can be used to form the aggregate period t price and quantity levels using equations (19):[10]

$$(18)\ P^{t*} \equiv \pi_t^* ; \quad Q^{t*} \equiv p^t \cdot q^t/\pi_t^* ; \qquad t = 1,...,T;$$
$$(19)\ Q^{t**} \equiv \alpha^* \cdot q^t ; P^{t**} \equiv p^t \cdot q^t/\alpha^* \cdot q^t ; \qquad t =1,...,T.$$

Define the error terms $e_{tn} \equiv \ln p_{tn} - \ln \pi_t^* - \ln \alpha_n^*$ for t = 1,...,T and n = 1,...,N. If all $e_{tn} = 0$, then P^{t*} will equal P^{t**} and Q^{t*} will equal Q^{t**} for t = 1,...,T.[11] However, if the error terms are not all equal to zero, then the statistical agency will have to decide on pragmatic grounds which option to use to form period t price and quantity levels, (18) or (19).

It is reasonably straightforward to generalize the weighted least squares minimization problem (13) to the case where there are missing prices and quantities. Assume that there are N products and T time periods but not all products are purchased (or sold) in all time periods. For each period t, define the set of products n that are present in period t as $S(t) \equiv \{n: p_{tn} > 0\}$ for t = 1,2,...,T. It is assumed that these sets are not empty; i.e., at least one product is purchased in each period. For each product n, define the set of periods t where product n is present as $S^*(n) \equiv \{t: p_{tn} > 0\}$. Again, assume that these sets are not empty; i.e., each product is sold in at least one time period. The generalization of (13) to the case of missing products is the following *weighted least squares minimization problem*:[12]

$$(20)\ \min_{\rho,\beta} \Sigma_{t=1}^T \Sigma_{n\in S(t)} s_{tn}[\ln p_{tn} - \rho_t - \beta_n]^2 = \min_{\rho,\beta} \Sigma_{n=1}^N \Sigma_{t\in S^*(n)} s_{tn}[\ln p_{tn} - \rho_t - \beta_n]^2.$$

Note that there are two equivalent ways of writing the least squares minimization problem; the first way uses the definition for the set of products n present in period t, S(t), while the second way uses the definition for the set of periods t where product n is present, $S^*(n)$. The first order necessary conditions for $\rho_1,...,\rho_T$ and $\beta_1,...,\beta_N$ to solve (20) are the following counterparts to (14) and (15):[13]

$$(21)\ \Sigma_{n\in S(t)} s_{tn}[\rho_t^* + \beta_n^*] = \Sigma_{n\in S(t)} s_{tn}\ln p_{tn} ; \qquad t = 1,...,T;$$
$$(22)\ \Sigma_{t\in S^*(n)} s_{tn}[\rho_t^* + \beta_n^*] = \Sigma_{t\in S^*(n)} s_{tn}\ln p_{tn} ; \qquad n = 1,...,N.$$

As usual, the solution to (21) and (22) is not unique: if $\rho^* \equiv [\rho_1^*,...,\rho_T^*]$ and $\beta^* \equiv [\beta_1^*,...,\beta_N^*]$ solve (21) and (22), then so do $[\rho_1^*+\lambda,...,\rho_T^*+\lambda]$ and $[\beta_1^*-\lambda,...,\beta_N^*-\lambda]$ for all λ. Thus we can set $\rho_1^* = 0$ in equations (22), drop the first equation in (21) and use linear algebra to find a unique solution for the resulting equations.[14]

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[10] Note that the price level P^{t**} defined in (19) is a quality adjusted unit value index of the type studied by de Haan (2004b).

[11] If all $e_{tn} = 0$, then the unweighted (or more accurately, the equally weighted) least squares minimization problem defined by (10) will generate the same solution as is generated by the weighted least squares minimization problem defined by (13). This fact gives rise to the following rule of thumb: if the unweighted problem (10) fits the data very well, then it is not necessary to work with the more complicated weighted problem (13).

[12] If only price information is available, then replace the s_{tn} in (20) by 1/N(t) where N(t) is the number of products that are observed in period t.

[13] The unweighted (i.e., equally weighted) counterpart least squares minimization problem to (20) sets all $s_{tn} = 1$ for $n\in S(t)$. The resulting first order conditions are equations (21) and (22) with the positive s_{tn} replaced with a 1.

[14] The resulting system of T – 1 + N equations needs to be of full rank in order to obtain a unique solution. The solution can also be obtained by running a linear regression.

Define the estimated *price levels* π_t^* and *quality adjustment factors* α_n^* by definitions (11) and (12). Substitute these definitions into equations (21) and (22). After some rearrangement, equations (21) and (22) become the following equations:

(23) $\pi_t^* = \exp[\Sigma_{n\in S(t)}\, s_{tn}\ln(p_{tn}/\alpha_n^*)]$; $\quad t = 1,...,T;$
(24) $\alpha_n^* = \exp[\Sigma_{t\in S^*(n)}\, s_{tn}\ln(p_{tn}/\pi_t^*)/\Sigma_{t\in S^*(n)}\, s_{tn}]$; $\quad n = 1,...,N.$

Once the estimates for the π_t and α_n have been computed, we have the usual two methods for constructing period by period price and quantity levels, P^t and Q^t for t = 1,...,T. The counterparts to definitions (18) are the following definitions:

(25) $P^{t*} \equiv \pi_t^* = \exp[\Sigma_{n\in S(t)}\, s_{tn}\ln(p_{tn}/\alpha_n^*)]$; $\quad t = 1,...,T;$
(26) $Q^{t*} \equiv \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/P^{t*}$; $\quad t = 1,...,T.$

Thus P^{t*} is a weighted geometric mean of the quality adjusted prices p_{tn}/α_n^* that are present in period t where the weight for p_{tn}/α_n^* is the corresponding period t expenditure (or sales) share for product n in period t, s_{tn}. The counterparts to definitions (19) are the following definitions:

(27) $Q^{t**} \equiv \Sigma_{n\in S(t)}\, \alpha_n^* q_{tn}$; $\quad t = 1,...,T;$
(28) $P^{t**} \equiv \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/Q^{t**}$ $\quad t = 1,...,T;$

$$\begin{aligned} &= \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/\Sigma_{n\in S(t)}\, \alpha_n^* q_{tn} \quad \text{using (27)} \\ &= \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/\Sigma_{n\in S(t)}\, \alpha_n^*(p_{tn})^{-1}p_{tn}q_{tn} \\ &= [\Sigma_{n\in S(t)}\, s_{tn}(p_{tn}/\alpha_n^*)^{-1}]^{-1} \\ &\le \exp[\Sigma_{n\in S(t)}\, s_{tn}\ln(p_{tn}/\alpha_n^*)] \\ &= P^{t*} \end{aligned}$$

where the inequality follows from Schlömilch's inequality[15]; i.e., a weighted harmonic mean of the quality adjusted prices p_{tn}/α_n^* that are present in period t, P^{t**}, will always be less than or equal to the corresponding weighted geometric mean of the prices where both averages use the same share weights s_{tn} when forming the two weighted averages. The inequalities $P^{t**} \le P^{t*}$ imply the inequalities $Q^{t**} \ge Q^{t*}$ for t = 1,...,T. The inequalities (28) are due to de Haan (2004b) (2010) and de Haan and Krsinich (2014) (2018; 763). The model used by de Haan and Krsinich is a more general hedonic regression model which includes the time dummy model used in the present section as a special case.

If the estimated errors $e_{tn}^* \equiv \ln p_{tn} - \rho_t^* - \beta_n^*$ that implicitly appear in the weighted least squares minimization problem turn out to equal 0, then the equations $p_{tn} = \pi_t\alpha_n$ for t = 1,...,T, $n\in S(t)$ hold without error and the hedonic regression provides a good approximation to reality. Moreover, under these conditions, P^{t*} will equal P^{t**} for all t. If the fit of the model is not good, then it may be necessary to look at other models such as those to be considered in subsequent sections.

The solution to the weighted least squares regression problem defined by (20) can be used to generate imputed prices for the missing products. Thus if product n in period t is missing, define $p_{tn} \equiv \pi_t^*\alpha_n^*$. The corresponding missing quantity is defined as $q_{tn} \equiv 0$. Some statistical agencies use hedonic regression

[15] See Hardy, Littlewood and Pólya (1934; 26).

models to generate imputed prices for missing prices and then use these imputed prices in their chosen index number formula.

One perhaps unsatisfactory property of the WTPD price levels π_t^* is the following one: a product that is available in only one period out of the T periods has no influence on the aggregate price levels π_t^*.[16] This means that the price of a new product that appears in period T has no influence on the price levels. The hedonic regression models in the next section that make use of information on the characteristics of the products do not have this unsatisfactory property of the weighted time product dummy hedonic regression models studied in this section.

3. The Time Dummy Hedonic Regression Model with Characteristics Information.

In this section, it is again assumed that there are N products that are available over a window of T periods. As in the previous sections, we again assume that the quantity aggregator function for the N products is the linear function, $f(q) \equiv \alpha \cdot q = \Sigma_{n=1}^{N} \alpha_n q_n$ where q_n is the quantity of product n purchased or sold in the period under consideration and α_n is the quality adjustment factor for product n. What is new is the assumption that the quality adjustment factors are functions of a vector of K *characteristics* of the products. Thus it is assumed that product n has the vector of characteristics $z^n \equiv [z_{n1},z_{n2},...,z_{nK}]$ for n = 1,...,N. We assume that this information on the characteristics of each product has been collected.[17] The new assumption in this section is that the quality adjustment factors α_n are functions of the vector of characteristics z^n for each product and the same function, g(z) can be used to quality adjust each product; i.e., we have the following assumptions:

$$(29)\ \alpha_n \equiv g(z^n) = g(z_{n1},z_{n2},...,z_{nK})\ ; \qquad n = 1,...,N.$$

Thus each product n has its own unique mix of characteristics z^n but the *same function* g can be used to determine the relative utility to purchasers of the products. Define the period t quantity vector as $q^t = [q_{t1},...,q_{tN}]$ for t = 1,...,T. If product n is missing in period t, then define $q_{tn} \equiv 0$. Using the above assumptions, the aggregate quantity level Q^t for period t is defined as:

$$(30)\ Q^t \equiv f(q^t) \equiv \Sigma_{n=1}^{N} \alpha_n q_{tn} = \Sigma_{n=1}^{N} g(z^n) q_{tn}\ ; \qquad t = 1,...,T.$$

Using our assumption of (exact) utility maximizing behavior with the linear utility function defined by (30), equations (6) become the following equations:

$$(31)\ p_{tn} = \pi_t g(z^n)\ ; \qquad t = 1,...,T;\ n \in S(t).$$

The assumption of approximate utility maximizing behavior is more realistic, so error terms need to be appended to equations (31). We also need to choose a functional form for the *quality adjustment function* or *hedonic valuation function* $g(z) = g(z_1,...,z_K)$. We will not be able to estimate the parameters for a general

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[16] Diewert (2004) established this property.

[17] Basically, we want to collect information on the most important price determining characteristics of each product; see Triplett (2004) and Aizcorbe (2014) for many examples of this type of hedonic regression and references to the applied literature on this topic. Of course, the fact that information on product characteristics must be collected is a disadvantage of the class of models studied in this section.

valuation function, so we assume that $g(z)$ is the product of K separate functions of one variable of the form $g_k(z_k)$; i.e., we assume that $g(z)$ is defined as follows:

(32) $g(z_1,...,z_K) \equiv g_1(z_1)g_2(z_2)\ldots g_K(z_K)$.

For our particular example, each characteristic takes on only a finite number of discrete values so in the empirical sections of this paper, we will assume that each $g_k(z_k)$ is a step function or a "plateaux" function which jumps in value at a finite number of discrete numbers in the range of each z_k. This assumption will eventually lead to a regression model where all of the independent variables are dummy variables.

For each characteristic k, we partition the observed sample range of the z_k into N(k) discrete intervals which exactly cover the sample range. Let I(k,j) denote the jth interval for the variable z_k for k = 1,,,,,K and j = 1,…,N(k). For each product observation n in period t (which has price p_{tn}) and for each characteristic k, define the indicator function (or dummy variable) $D_{tn,k,j}$ as follows:

(33) $D_{tn,k,j} \equiv 1$ if observation n in period t has the amount of characteristic k, z_{nk}, that belongs to the jth interval for characteristic k, I(k,j) where k = 1,…,K and j = 1,…,N(k);
$\equiv 0$ if the amount of characteristic k for observation n in period t, z_{nk}, does not belong to the interval I(k,j).

We use definitions (33) in order to define $g(z^n) = g(z_{n1},z_{n2},\ldots,z_{nK})$ for product n if it is purchased in period t:[18]

(34) $g(z_{n1},z_{n2},\ldots,z_{nK}) \equiv (\Sigma_{j=1}^{N(1)}\, a_{1j}D_{tn,1,j})(\Sigma_{j=1}^{N(2)}\, a_{2j}D_{tn,2,j}) \ldots (\Sigma_{j=1}^{N(K)}\, a_{Kj}D_{tn,K,j})$.

Substitute equations (34) into equations and we obtain the following system of possible estimating equations where the π_t and $a_{1j}, a_{2j}, \ldots, a_{Kj}$ are unknown parameters:

(35) $p_{tn} = \pi_t(\Sigma_{j=1}^{N(1)}\, a_{1j}D_{tn,1,j})(\Sigma_{j=1}^{N(2)}\, a_{2j}D_{tn,2,j}) \ldots (\Sigma_{j=1}^{N(K)}\, a_{Kj}D_{tn,K,j})$; $\qquad t = 1,...,T;\ n\in S(t)$.

We take logarithms of both sides of equations (35) in order to obtain the following system of estimating equations:[19]

(36) $\ln p_{tn} = \ln\pi_t + \Sigma_{j=1}^{N(1)}\, (\ln a_{1j})D_{tn,1,j} + \Sigma_{j=1}^{N(2)}\, (\ln a_{2j})D_{tn,2,j} + \ldots + \Sigma_{j=1}^{N(K)}\, \ln(a_{Kj})D_{tn,K,j}$; $\quad t = 1,...,T;\ n\in S(t)$.

Define the following parameters :

(37) $\rho_t \equiv \ln\pi_t$; $t = 1,\ldots,T$; $b_{1j} \equiv \ln a_{1j}$; $j = 1,\ldots,N(1)$; $b_{2j} \equiv \ln a_{2j}$; $j = 1,\ldots,N(2)$; …; $b_{Kj} \equiv \ln a_{Kj}$; $j = 1,\ldots,N(K)$.

Upon substituting definitions (37) into equations (36) and adding error terms e_{tn}, we obtain the following linear regression model:

(38) $\ln p_{tn} = \rho_t + \Sigma_{j=1}^{N(1)}\, b_{1j}D_{tn,1,j} + \Sigma_{j=1}^{N(2)}\, b_{2j}D_{tn,2,j} + \ldots + \Sigma_{j=1}^{N(K)}\, b_{Kj}D_{tn,K,j} + e_{tn}$; $\qquad t = 1,...,T;\ n\in S(t)$.

[18] If product n is purchased in periods t and τ, then the expression on the right hand side of (34) remains the same.
[19] The hedonic price index which is generated by the model defined by equations (35) is not invariant to changes in the units of measurement of the characteristics; see Diewert (2023).

There are a total of T + N(1) + N(2) + … + N(K) unknown parameters in equations (38). The least squares minimization problem that corresponds to the linear regression model defined by (38) is the following least squares minimization problem:

$$(39)\ \min_{\rho, b(1), b(2), \ldots, b(K)} \Sigma_{t=1}^{T} \Sigma_{n\in S(t)} \{\ln p_{tn} - \rho_t - \Sigma_{j=1}^{N(1)} b_{1j}D_{tn,1,j} - \Sigma_{j=1}^{N(2)} b_{2j}D_{tn,2,j} - \ldots - \Sigma_{j=1}^{N(K)} b_{Kj}D_{tn}\}^2$$

where ρ is the vector $[\rho_1, \rho_2, \ldots, \rho_T]$ and b(k) is the vector $[b_{k1}, b_{k2}, \ldots, b_{kN(k)}]$ for k = 1,2….,K. Solutions to the least squares minimization problem will exist but a solution will not be unique.[20] Using equations (35), it can be seen that components of the vectors π and $a(k) \equiv [a_{k1}, a_{k2}, \ldots, a_{kN(k)}]$ for k = 1,2,…,K are multiplied together to give us predicted values for the p_{tn}. Thus the parameters in any one of these K+1 vectors can be arbitrary but at least one component of each of the remaining vectors must be set equal to a constant. A useful unique solution to (39) is obtained by setting $\rho_1 = 0$ (which corresponds to $\pi_1 = 1$) and setting $b_{k1} = 0$ for k = 2,…,K (so b_{11} is not normalized).

Once the normalizations suggested above have been imposed, the linear regression defined by (38) can be run and estimates for the unknown parameters $[\rho_1^*, \rho_2^*, \ldots, \rho_T^*]$ and $[b_{k1}^*, b_{k2}^*, \ldots, b_{kN(k)}^*]$ for k = 1,2….,K will be available. Use these estimates to define the logarithms of the quality adjustment factors α_n for all products n that were purchased in period t:[21]

$$(40)\ \beta_{tn}^* \equiv \Sigma_{j=1}^{N(1)} b_{1j}^* D_{tn,1,j} + \Sigma_{j=1}^{N(2)} b_{2j}^* D_{tn,2,j} + \ldots + \Sigma_{j=1}^{N(K)} b_{Kj}^* D_{tn,K,j}\ ;\ ; \qquad t = 1,...,T;\ n\in S(t).$$

The corresponding estimated product n quality adjustment factors α_{tn}^* are obtained by exponentiating the β_{tn}^*:

$$(41)\ \alpha_{tn}^* \equiv \exp[\beta_{tn}^*]\ ; \qquad t = 1,...,T;\ n\in S(t).$$

Using the above α_{tn}^*, we can form a direct estimate for the aggregate quantity or utility obtained by purchasers during period t:

$$(42)\ Q^{t**} \equiv \Sigma_{n\in S(t)}\ \alpha_{tn}^* q_{tn}\ ; \qquad t = 1,...,T.$$

The corresponding period t price level obtained indirectly, P^{t**}, is defined by deflating period t expenditure by period t aggregate quantity:

$$(43)\ P^{t**} \equiv \Sigma_{n\in S(t)}\ p_{tn}q_{tn}/Q^{t**} = \Sigma_{n\in S(t)}\ p_{tn}q_{tn}/\Sigma_{n\in S(t)}\ \alpha_{tn}^* q_{tn}\ ; \qquad t = 1,\ldots,T.$$

In order to obtain a useful expression for the direct estimate for the period t price level, π_t, look at the first order conditions for minimizing (39) with respect to ρ_t:

$$(44)\ 0 = \Sigma_{n\in S(t)} \{\ln p_{tn} - \rho_t^* - \Sigma_{j=1}^{N(1)} b_{1j}^* D_{tn,1,j} - \Sigma_{j=1}^{N(2)} b_{2j}^* D_{tn,2,j} - \ldots - \Sigma_{j=1}^{N(K)} b_{Kj}^* D_{tn}\} \qquad t = 2,\ldots,T$$
$$= \Sigma_{n\in S(t)} \{\ln p_{tn} - \rho_t^* - \beta_n^*\}$$

[20] Thus the X matrix that corresponds to the linear regression model defined by equations (36) will not have full column rank.
[21] If product n is available in multiple periods, the quality adjustment factors remain the same across periods.

where we used definitions (40) to derive the second equality. Let N(t) be the number of products purchased in period t for t = 1,…,T. Using definitions (37) and (41), equations (44) imply that the direct estimate of the period t price level π_t^* is equal to:

$$(45)\ \pi_t^* = \Pi_{n\in S(t)}(p_{tn}/\alpha_{tn}^*)^{1/(N(t)} \equiv P^{t*}\ ; \qquad t = 2,\ldots,T.$$

Thus the direct estimate for the period t price level P^{t*} is equal to the geometric mean of the period t quality adjusted prices (p_{tn}/α_{tn}^*) for the products that were purchased in period t. Note that this price level can be calculated using price information alone whereas the indirect measure P^{t**} requires price and quantity information on the purchase of products during period t.

A problem with the least squares minimization problem defined by (39) is that it does not take the economic importance of the products into account. Thus, we consider the corresponding weighted least squares problem defined below:

$$(46)\ \min_{\rho,\, b(1),\, b(2),\, \ldots,\, b(K)} \Sigma_{t=1}^{T} \Sigma_{n\in S(t)}\, s_{tn}\{\ln p_{tn} - \rho_t - \Sigma_{j=1}^{N(1)} b_{1j}D_{tn,1,j} - \Sigma_{j=1}^{N(2)} b_{2j}D_{tn,2,j} - \ldots - \Sigma_{j=1}^{N(K)} b_{Kj}D_{tn}\}^2$$

where $s_{tn} = p_{tn}q_{tn}/\Sigma_{j\in S(t)}\, p_{tj}q_{tj}$ for t = 1,…,T and $n\in S(t)$ and we use the same definitions as were used in the unweighted (or more properly, the equally weighted) least squares minimization problem defined by (39).

The new weighted counterpart to the linear regression model that was defined by equations (38) is given below:

$$(47)\ (s_{tn})^{1/2}\ln p_{tn} = (s_{tn})^{1/2}(\rho_t + \Sigma_{j=1}^{N(1)} b_{1j}D_{tn,1,j} + \Sigma_{j=1}^{N(2)} b_{2j}D_{tn,2,j} + \ldots + \Sigma_{j=1}^{N(K)} b_{Kj}D_{tn,K,j}) + e_{tn}; \qquad t = 1,\ldots,T;\ n\in S(t).$$

In order to identify all of the parameters, make the same normalizations as were made above; i.e., set ρ_1 = 0 and b_{k1} = 0 for, k = 2,…,K. Use definitions (40), (41), (42) and (43) to define new β_{tn}^*, α_{tn}^*, Q^{t**} and P^{t**}. We rewrite P^{t**} in a somewhat different manner as follows:

$$\begin{aligned}(48)\ P^{t**} &= \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/\Sigma_{n\in S(t)}\, \alpha_{tn}^*q_{tn} \qquad t = 1,\ldots,T\\ &= \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/\Sigma_{n\in S(t)}\, (\alpha_{tn}^*/p_{tn})p_{tn}q_{tn}\\ &= [\Sigma_{n\in S(t)}\, s_{tn}(p_{tn}/\alpha_{tn}^*)^{-1}]^{-1}.\end{aligned}$$

In order to obtain a useful expression for the direct estimate for the period t price level, π_t, look at the first order conditions for minimizing (46) with respect to ρ_t:

$$\begin{aligned}(49)\ 0 &= \Sigma_{n\in S(t)}\, s_{tn}\{\ln p_{tn} - \rho_t^* - \Sigma_{j=1}^{N(1)} b_{1j}^*D_{tn,1,j} - \Sigma_{j=1}^{N(2)} b_{2j}^*D_{tn,2,j} - \ldots - \Sigma_{j=1}^{N(K)} b_{Kj}^*D_{tn}\} \qquad t = 2,\ldots,T\\ &= \Sigma_{n\in S(t)}\, s_{tn}\,\{\ln p_{tn} - \rho_t^* - \beta_n^*\}\end{aligned}$$

where we used definitions (40) to derive the second equality. Note that $\Sigma_{n\in S(t)}\, s_{tn} = 1$. Using definitions (37) and (41), equations (49) imply that the direct estimate of the period t price level π_t^* is equal to:[22]

$$(50)\ \pi_t^* = \Pi_{n\in S(t)}(p_{tn}/\alpha_{tn}^*)^{s(t,n)} \equiv P^{t*}\ ; \qquad t = 2,\ldots,T$$

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[22] Our normalizations imply $\pi_1^* = 1$.

where s(t,n) = s_{tn}. The indirect period t quantity level is defined (as usual) as period t expenditure divided by P^{t*}:

(51) $Q^{t*} \equiv \Sigma_{n \in S(t)}\, p_{tn}q_{tn}/P^{t*}$; t = 1,…,T.

Note that the direct period t price level defined by (50), P^{t*}, is a period t share weighted geometric mean of the period t quality adjusted prices p_{tn}/α_{tn}^* while the indirect period t price level P^{t**} defined by (48) is a period t share weighted harmonic mean of the period t quality adjusted prices and thus we have the de Haan inequalities:

(52) $P^{t**} \le P^{t*}$ and $Q^{t**} \ge Q^{t*}$; t = 1,…,T.

We turn to an empirical example where we estimate alternative hedonic regression models and make use of the above analysis.

4. Laptop Data for Japan and Sample Wide Hedonic Regressions Using Characteristics.

4.1 The Laptop Data and Some Preliminary Price Indexes.

We obtained data from a private firm that collects price, quantity and characteristic information on the monthly sales of laptop computers across Japan. The data are thought to cover more than 60% of all laptop sales in Japan. We utilized the data for the 24 months in the years 2020 and 2021 for our regressions and index computations. There were 2639 monthly price and quantity observations on laptops sold in total over all months. Thus the prices and quantities are p_{tn} and q_{tn} where p_{tn} is the average monthly (unit value) price for product n in month t in Yen and q_{tn} is the number of product n units sold. The mean (positive) q_{tn} was 594.7 and the mean (positive) p_{tn} was 117640 yen. Over the 24 months in our sample, 366 distinct products were sold so n = 1,…,366. We set t = 1,2,,,,,24. If product n did not sell in month t, then we set p_{tn} and q_{tn} equal to 0. If each product sold in each month, we would have 366 x 24 = 8784 positive monthly prices and quantities, p_{tn} and q_{tn}, but on average, only 30.0% of the products were sold per month since 2639/8784 = 0.300. Thus there is tremendous product churn in the sales of laptops in Japan, with individual products quickly entering and then exiting the market for laptops.

The positive prices p_{tn} and quantities q_{tn} are listed in Table 1 in the Appendix as the variables P and Q. This Appendix also lists the corresponding month of sale and the Japanese Product Code number (JAN) for each entry. This table also lists information on 6 additional characteristics of the laptop product, which are discussed below.

CLOCK is the clock speed of the laptop. The mean clock speed was 1.94 and the range of clock speeds was 1 to 3.4. The larger is the clock speed, the faster the computer can make computations.

MEM is the memory capacity for the laptop. The mean memory size was 8188.9. There were only 4 clock speeds listed in our sample: 4096, 8192 and 16,384.

SIZE is the screen size of the laptop. The mean screen size (in inches) was 14.49. There were 10 distinct screen sizes in our sample: 11.6, 12, 12.5, 13.3, 14, 15.4, 15.6,16, 16.1 and 17.3.

PIX is the number of pixels imbedded in the screen of the laptop. The mean number of pixels was 24.82. There were only 10 distinct number of pixels in our sample: 10.49, 12.46, 12.96, 20.74, 33.18, 40.96, 51.84, 55.30, 58.98 and 82.94.

HDMI is the presence (HDMI = 1) or absence (HDMI = 0) of a HDMI terminal in the laptop. If HDMI =1, then it is possible to display digitally recorded images without degradation.

A priori, we expect that purchasers would value higher clock speed, memory capacity, screen size, the number of pixels and the availability of HDMI in a laptop, leading to increasing estimated coefficients for the dummy variables corresponding to higher values of the characteristic under consideration.

BRAND is the name of the manufacturer of the laptop. In the data file, BRAND takes on the values 1-12 but the second brand is not present in 2020-2021 so we have only 11 brands in our sample. BRAND is frequently used as an explanatory variable in a hedonic regression as a proxy for company wide product characteristics that may be missing from the list of explicit product characteristics that are included in the regression.

In summary, Table A1 in the Appendix lists the following 11 variables in vectors of dimension 2639: OBS (runs from 1 to 2639), TD, JAN, CLOCK, MEM, SIZE, PIX, HDMI, BRAND, Q and P.

The information in the column vectors TD and JAN were used to generate 24 time dummy variables, D_1, D_2, …, D_{24}[23] and 366 product dummy variable vectors, D_{J1}, D_{J2},…,D_{J366}.[24]

In our regressions and calculation of price and quantity indexes, we transformed some of our units of measurement to make the mean value of the series closer to unity. Thus the p_{tn} were replaced by p_{tn}/100,000 so we are measuring prices in units of 100,000 Yen. Similarly MEM was replaced by MEM/1000, SIZE was replaced by SIZE/10 and PIX was replaced by PIX/10. The basic descriptive statistics for the above variables (after transformation) are listed in Table 1 below. The variables P and Q are the 2639 positive prices and quantities p_{tn} and q_{tn} stacked up into vectors of dimension 2639.

Table 1: Descriptive Statistics for the Variables

Name	No. of Obs.	Mean	Std. Dev	Variance	Minimum	Maximum
JAN	2639	195.75	103.94	10803	1	366
CLOCK	2639	1.9397	0.51807	0.2684	1	3.4
MEM	2639	8.1889	3.4357	11.804	4.096	16.384
SIZE	2639	1.4493	0.13807	0.0191	1.16	1.73
PIX	2639	2.482	1.2891	1.6617	1.049	8.294
HDMI	2639	0.75332	0.43116	0.1859	0	1
BRAND	2639	9.1527	2.2091	4.88	1	12
Q	2639	594.69	735.68	541230	100	5367
P	2639	1.1764	0.49155	0.24162	0.17381	2.8729

[23] Use IF statements to construct these dummy variables. Using the econometric package SHAZAM, the first two and last time dummy variable vectors of dimension 2639 were constructed using the following statements: GENR D1=(TD.EQ.20201); GENR D2=(TD.EQ.20202); …; GENR D24=(TD.EQ.202112). See White (2004) for information on Shazam.

[24] Again use IF statements to construct the product dummy variables of dimension 2639. Using SHAZAM, these dummy variables D_{J1}-D_{J366} were constructed using the following statements: DO #=1,366; GENR DJ#=(JAN.EQ.#) ; ENDO.

It is of interest to calculate the average price of a laptop that was sold in period t, PA^t, for each of the 24 months of data in our sample:

(53) $PA^t \equiv \Sigma_{n\in S(t)}\, p_{tn}/N(t)$; $\qquad t = 1,\ldots,24$

where N(t) is the number of laptops sold in period t and S(t) is the set of products sold in period t.[25]

The average period t price of a laptop, PA^t, weights each period t laptop price equally and thus does not take the economic importance of each type of laptop into account. A more representative measure of average laptop price in period t is the period t *unit value price*, PUV^t, defined as follows:

(54) $PUV^t \equiv \Sigma_{n\in S(t)}\, p_{tn}q_{tn}/\Sigma_{n\in S(t)}\, q_{tn} = \Sigma_{n\in S(t)}\, e_{tn}/\Sigma_{n\in S(t)}\, q_{tn}$ $\qquad t = 1,\ldots,24$

where $e_{tn} \equiv p_{tn}q_{tn}$ is expenditure or sales of product n in period t for t = 1,…,24 and n = 1,…,366.[26]

We convert the average prices defined by (53) and (54) into price indexes by dividing each series by the corresponding series value by the corresponding period 1 entry. Thus define the period t *average price index* $P_A{}^t$ and the period t *unit value price index* $P_{UV}{}^t$ as follows:

(55) $P_A{}^t \equiv PA^t/PA^1$; $P_{UV}{}^t \equiv PUV^t/PUV^1$; $\qquad t = 1,\ldots,24.$

The time series N(t), PA^t, PUV^t, $P_A{}^t$ and $P_{UV}{}^t$ are listed below in Table 2.

Table 2: Average Prices and Unit Values and Average Price and Unit Value Price Indexes

Month t	N(t)	PA^t	PUV^t	$P_A{}^t$	$P_{UV}{}^t$
1	146	1.23522	1.28422	1.00000	1.00000
2	134	1.27876	1.28041	1.03525	0.99703
3	147	1.27849	1.29670	1.03503	1.00972
4	133	1.26150	1.28001	1.02127	0.99538
5	110	1.31278	1.30992	1.06279	1.02001
6	95	1.31639	1.28645	1.06571	1.00173
7	103	1.26883	1.26349	1.02721	0.98386
8	94	1.26053	1.25112	1.02049	0.97422
9	83	1.24859	1.22112	1.01082	0.95086
10	78	1.27961	1.27247	1.03594	0.99085
11	71	1.25161	1.21663	1.01327	0.94737
12	72	1.17273	1.12868	0.94941	0.87888
13	124	1.11517	1.08334	0.90281	0.84358
14	136	1.12928	1.08597	0.91423	0.84563

[25] Using SHAZAM and the time dummy variables D1-D24, the PA^t can be generated by the following statements: first create a vector of ones of dimension 2639: SMPL 1 2639; GENR ONE=1. The N(t) for T = 1,…,24 can be generated as follows by taking the inner product of the time dummy variables D# with the vector of ones: DO #=1,24 ; MATRIX N#=ONE'D# ; ENDO . Now generate the sum of the prices in month # , SUM#, by taking the inner product of the complete price vector of dimension 2639 P with each time dummy variable, D#: DO #=1,24 ; MATRIX PA#=D#'P ; ENDO. Now form $PA^{\#}$ as SUM#/N# for #=1,…,24.

[26] Using SHAZAM, the PUV^t can be generated as follows. First generate the vector of expenditures on purchased commodities E by the following statements: SMPL 1 2639 ; GENR E=P*Q. Now inner product the vectors E and Q with the time dummy variables to obtain the numerators and denominators for the $PUV^{\#}$: DO #=1,24 ; MATRIX NUM# = E'D# ; MATRIX DEN# = Q'D# ; ENDO. Then generate the $PUV^{\#}$ as NUM#/DEN# for # = 1,24.

15	**150**	**1.11056**	**1.08594**	**0.89907**	**0.84560**
16	**135**	**1.15121**	**1.09629**	**0.93198**	**0.85366**
17	**105**	**1.10092**	**1.03040**	**0.89127**	**0.80235**
18	**109**	**1.06995**	**1.01540**	**0.86620**	**0.79067**
19	**107**	**1.05176**	**1.02634**	**0.85147**	**0.79919**
20	**101**	**1.02677**	**1.01863**	**0.83124**	**0.79319**
21	**100**	**1.04738**	**0.99001**	**0.84793**	**0.77090**
22	**91**	**1.11610**	**1.09602**	**0.90356**	**0.85345**
23	**96**	**1.06155**	**1.08657**	**0.85940**	**0.84609**
24	**119**	**1.10240**	**1.12772**	**0.89247**	**0.87814**
Mean	**109.96**	**1.17700**	**1.15970**	**0.95287**	**0.90302**

It can be seen that the equally weighted average price of a laptop, PA^t, is on average 1.5% higher than the average unit value price, PUV^t, since 1.1770/1.1597 = 1.01492. This means that on average, laptop models that have low sales have higher prices than high volume models. However, there are substantial fluctuations in average prices so that at times, $PA^t > PUV^t$, which happens when t = 1. When we convert the average prices PA^t and PUV^t into the price indexes $P_A{}^t$ and $P_{UV}{}^t$, it turns out that the mean of the $P_A{}^t$ is 0.95287 which is substantially higher than the mean of the $P_{UV}{}^t$ which is 0.90302. However, the two index number series end up fairly close to each other at month 24: $P_A{}^{24} = 0.89247$ while $P_{UV}{}^{24} = 0.87814$. We regard the unit value price index series, $P_{UV}{}^t$, as being more accurate than the average price series, $P_A{}^t$.

Note that the number of separate models sold in month t, N(t), ranges from a low of 71 in month 11 to a high of 147 in month 3. If each model sold in every month, then N(t) would equal 366 for each month.

4.2 A Hedonic Regression with Clock Speed as the Only Characteristic.

Of course, the price indexes $P_A{}^t$ and $P_{UV}{}^t$ make no adjustments for changes in the average quality of laptops over time. Thus we now consider hedonic regression models of the type defined by equations (38) in the previous section. We start our analysis by regressing the price vector P on the time dummy variables D_1.,,,,D_{24} and dummy variables for the clock speed of each laptop that was sold during the sample period.

The clock speeds range from 1.0 to 3.4 in increments of 0.1. Thus there are 25 possible clock speeds. Vectors of dummy variables of dimension 2639, D_{C1}, D_{C2}, …, D_{C25}, were generated using IF statements applied to the CLOCK variable.[27] The number of observations in each cell of clock speeds were as follows: 53, 280, 69, 18, 85, 51, 225, 0, 486, 104, 165, 201, 63, 186, 151, 31, 305, 12, 124, 10, 2, 10, 0, 4, 4. Thus D_{C8} and D_{C23} were vectors of zeros and there were no products that have clock speeds equal to 1.7 or 3.2. Also, several cells had very few members. Thus we reduced the number of cell speed categories from 25 to 7. We attempted to get approximately the same number of observations in each category except the highest cell speed category. New Groups 1 to 7 aggregated old groups 1-3, 4-8, 8-9, 10-12, 13-15, 16-18 and 19-25 respectively. Thus the new dummy variable vector D_{C1} equals the sum of the old vectors $D_{C1} + D_{C2} + D_{C3}$, the new D_{C2} equals the sum of the old vectors $D_{C4} + D_{C5} + D_{C6} + D_{C7} + D_{C8}$ and so on.

Our first hedonic regression sets the dependent variable vector equal to the logarithms of the product price vector P (which we denote by lnP) and the vectors in the matrix of independent variables are the time dummy variable vectors D_2, D_3,…,D_{24} and the new 7 clock speed dummy variable vectors D_{C1}, D_{C2}, …, D_{C7}. The number of products that are in each of the 7 new clock speed cells are 402, 379, 486, 470, 400,

[27] Using SHAZAM, D_{C1}, D_{C2}, …, D_{C25} can be generated using the commands GENR DCL1=(CLOCK.EQ.1.0), GENR DCL2=(CLOCK.EQ.1.1), …, GENR DCL25=(CLOCK.EQ.3.4).

348 and 154. Thus we have the following linear regression that is a special case of the class of models defined by (38) in the previous section:

(56) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + \Sigma_{j=1}^{7} b_{Cj} D_{Cj} + e$

where e is an error vector of dimension 2639.

We estimated the unknown parameters, $\rho_2^*, \rho_3^*, \ldots, \rho_{24}^*, b_{C1}^*, \ldots, b_{C7}^*$ in the linear regression model defined by (51) using ordinary least squares (the OLS command in Shazam). The log of the likelihood function was – 1401.58 and the R^2 between the observed price vector and the predicted price vector was only 0.2984. If increased clock speed is valuable to purchasers, we would expect the estimated b_{Cj}^* coefficients to increase as j increases. For this regression, the estimates for $b_{C1}^*, \ldots, b_{C7}^*$ were −0.4213, 0.0669, 0.1498, −0.0050, 0.2606, 0.3253 and 0.4535. These coefficients increase monotonically except for b_{C4}^*, so overall, it seems that purchasers do value increased clock speed.[28]

The estimated ρ_t^* are the logarithms of the price levels P^{t*} for t = 2,3,…,24 but we will not list the estimated price levels until we have entered all 6 of our characteristics listed in the data Appendix into the regression.

Once the estimates for the b_{Cj} are available, we can calculate the logarithms of the appropriate quality adjustment factor α_{tn}^* that can be used to determine the quality of product n in month t. Denote the logarithm of α_{tn}^* by β_{tn}^* for t = 1,…,24 and $n \in S(t)$. Denote the vector of estimated quality adjustment factors (of dimension 2639) by β^*. It turns out that β^* can be calculated as follows:

(57) $\beta^* = \Sigma_{j1}^{7} b_{Cj}^* D_{Cj}$.

It is convenient to have a constant term in a linear regression: if this is the case, then the error terms must sum to zero across all observations. We can introduce a constant term into our regression model defined by (56) as follows. First define ONE as a vector of ones of dimension 2639. Consider the following linear regression model:

(58) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + e$

where e is an error vector of dimension 2639. Thus we have added a vector of ones as an independent variable in the new regression defined by (58) and dropped the first clock speed dummy variable vector D_{C1} as an explanatory variable. Denote the ordinary least squares estimates for the parameters in (58) by $\rho_2^{**}, \rho_3^{**}, \ldots, \rho_{24}^{**}, b_0^{**}, b_{C2}^{**}, \ldots, b_{C7}^{**}$. It turns out that $\rho_t^{**} = \rho_t^*$ for t = 2,3,…,24 and the following vector equation also holds:

(59) $b_0^* ONE + \Sigma_{j=2}^{7} b_{Cj}^* D_{Cj} = \Sigma_{j=1}^{7} b_{Cj}^* D_{Cj}$.

Thus the vector of log quality adjustment factors for the positive observed prices in the sample, β^* defined by (57), is also equal to the following expression:

(60) $\beta^* = b_0^* ONE + \Sigma_{j=2}^{7} b_{Cj}^* D_{Cj}$.

[28] Of course, these coefficients will change as we add other characteristics to the regression.

In the models which follow, we will add additional characteristics to the hedonic regression model defined by (60) rather than adding addition explanatory variables to the model defined by (56).

4.3 A Hedonic Regression that Added Memory Capacity as an Additional Characteristic.

We add memory capacity as another price determining characteristic of a laptop. There were only 3 sizes of memory capacity (the variable MEM in the Data Appendix): 4096, 8192 and 16384. Construct dummy variable vectors of dimension 2639 for each value of MEM.[29] Denote these vectors as D_{M1}, D_{M2} and D_{M3}. The new log price time dummy characteristic hedonic regression is the following counterpart to (58):

(61) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + \Sigma_{j=2}^{3} b_{Mj} D_{Mj} + e.$

The log of the likelihood function was − 648.937, a gain of 752.64 log likelihood points for adding 2 new memory size parameters. The R^2 between the observed price vector and the predicted price vector was 0.6034. If increased memory capacity is valuable to purchasers, we would expect the estimated b_{Mj}^* coefficients to increase as j increases. For this regression, the estimates for b_{M2}^* and b_{M3}^* were .5493 and 0.9789. This regression indicates that purchasers do value increased memory capacity and are willing to pay a higher price for a laptop with greater memory capacity, other characteristics being held constant.

4.4 A Hedonic Regression that Added Screen Size as an Additional Characteristic.

There were 10 different screen sizes (in units of 10 inches) in our sample of laptop observations. This variable is listed as SIZE in the Data Appendix. The 10 screen sizes in our sample were: 1.16, 1.2, 1.25, 1.33, 1.4, 1.54, 1.56, 1.6, 1.61 and 1.73. The usual commands were used to generate 10 dummy variables for this characteristic. However, for the screen sizes 1.2, 1.56 and 1.61, we had only 12, 14 and 35 observations in our sample for these three sizes. Thus we combined the dummy variable for size 1.2 with the dummy variable for 1.16,[30] combined the dummy variable for size 1.56 with size 1.54 and combined the dummy variables for sizes 1.6 and 1.61. Denote the resulting 7 dummy variables of dimension 2639 by $D_{S1}, D_{S2}, \ldots, D_{S7}$. The number of observations in each of the 7 screen size cells was 98, 154, 810, 257, 1106, 114, 100.

The new log price time dummy characteristic hedonic regression is the following counterpart to (61):

(62) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + \Sigma_{j=2}^{3} b_{Mj} D_{Mj} + \Sigma_{j=2}^{7} b_{Sj} D_{Sj} + e.$

The log of the likelihood function was − 202.270, a gain of 446.667 log likelihood points for adding 6 new screen size parameters. The R^2 between the observed price vector and the predicted price vector was 0.7173. If increased screen size is valuable to purchasers, we would expect the estimated b_{Sj}^* coefficients to increase as j increases. For this regression, the estimates for b_{S2}^*-b_{S7}^* were 0.73371, 0.59447, 0.22923, 0.34524,

[29] Using SHAZAM, the commands to create these dummy variable vectors D are: GENR DM1=(MEM.EQ.4096) ; GENR DM2=(MEM.EQ.8192) and GENR DM3=(MEM.EQ.16384). The number of products in each of these 3 cells are 620, 1710 and 309.

[30] GENR DS1=(SIZE.GE.1.16).AND.(SIZE.LE.1.20) is the SHAZAM command to construct the combined dummy variable.

0.74190 and 0.68987. This regression indicates that purchasers prefer small and large screen sizes over intermediate screen sizes for laptops.

4.5 A Hedonic Regression that Added Pixels as an Additional Characteristic.

There were 10 different numbers of pixels in our sample of laptop observations. A larger number of pixels per unit of screen size will lead to clearer images on the screen and this may be utility increasing for purchasers. The pixel variable is listed as PIX in the Data Appendix. There were 10 different PIX sizes in our sample. The 10 sizes (in transformed units of measurement) were: 1.049, 1.246, 1.296, 2.074, 3.318, 4.096, 5.184, 5.530, 5.898 and 8.294. The number of observations having these pixel sizes were as follows: 324, 4, 2, 1769, 5, 400, 14, 3, 79 and 39. The usual commands were used to generate the 10 pixel dummy variables, D_{P1}-D_{P10}. However, the number of observations in pixel groups 2, 3, 5, 7 and 8 were 14 or less so these groups of observations need to be combined with other categories. We ended up with 5 pixel groups: the new group 1 combined groups 1, 2 and 3; old group 4 became the new group 2, old groups 5 and 6 were combined to give us the new group 3, old groups 7, 8 and 9 were combined to be the new group 4 and the old group 10 became the new group 5.[31] Denote the new pixel dummy variable vectors as D_{P1}-D_{P5}. The number of observations in each of these new pixel cells was 330, 1769, 405, 96, 39.

The new log price time dummy characteristic hedonic regression is the following counterpart to (62):

(63) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + \Sigma_{j=2}^{3} b_{Mj} D_{Mj} + \Sigma_{j=2}^{7} b_{Sj} D_{Sj} + \Sigma_{j=2}^{5} b_{Pj} D_{Pj} + e.$

The log of the likelihood function for the hedonic regression defined by (63) was − 71.1313, a gain of 131.139 log likelihood points for adding 4 new pixel number parameters. The R^2 between the observed price vector and the predicted price vector was 0.7440. If an increased number of pixels is valuable to purchasers, we would expect the estimated b_{Pj}^* coefficients to increase as j increases. For this regression, the estimates for b_{P2}^*-b_{P5}^* were 0.19750, 0.21889, 0.56884 and 0.69244. Thus the coefficients for the pixel dummy variables increase monotonically, indicating that purchasers are willing to pay more for an increase in screen clarity.

4.6 A Hedonic Regression that Added HDMI as an Additional Characteristic.

The dummy variable that indicates the presence of HDMI in the laptop has already been generated and is listed in the Data Appendix as the column vector HDMI. Denote this column vector as D_{H2} in the following hedonic regression which adds D_{H2} to the other regressor columns in (63):

(64) $\ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + \Sigma_{j=2}^{3} b_{Mj} D_{Mj} + \Sigma_{j=2}^{7} b_{Sj} D_{Sj} + \Sigma_{j=2}^{5} b_{Pj} D_{Pj} + D_{H2} + e.$

The log of the likelihood function for the hedonic regression defined by (64) was 49.499, a gain of 120.631 log likelihood points for adding 1 new HDMI parameter. The R^2 between the observed price vector and the predicted price vector was 0.7764 which is a material increase over the R^2 of the previous model which was equal to 0.7440. If having HDMI capability in the laptop is valuable to purchasers, we would expect the

[31] The SHAZAM commands that generated the new groups were as follows: GENR DPI1=DPI1+DPI2+DPI3; GENR DPI2=DPI4; GENR DPI3=DPI5+DPI6; GENR DPI4=DPI7+DPI8+DPI9; GENR DPI5=DPI10.

estimated b_{H2}^* coefficient to be positive. Our estimated coefficient b_{H2}^* was equal to 0.36041 which is a positive number and hence, the presence of HDMI in the laptop increases utility.

4.7 A Hedonic Regression that Added Brand as an Additional Characteristic.

As indicated above in section 4.1, there are 11 brands in our sample. In the Data Appendix the variable BRAND takes on values from 1 to 12 but there are no brands that correspond to the number 2 in our sample for the 24 months in the years 2020 and 2021. Here are the numbers of observations in each of the 12 BRAND categories: 4, 0, 3,101, 6, 235, 107, 389, 489, 439, 327, 479. We calculated the sample wide average price for each brand and re-ordered the brands according to their average prices with the lowest average price brands listed first and the highest average brand listed last. After re-ordering (and dropping old brand 2), the new brand ordering from 1-11 consists of the following initial brands: 7, 6, 5, 9, 1, 12, 8, 4, 11, 10, 3. The number of observations in each new BRAND category are as follows: 107, 235, 66, 489, 4, 479, 389, 101, 327, 439, 3. Construct the 11 vectors of dummy variables for the 11 new brand categories and denote these vectors of dimension 2639 by D_{B1}-D_{B11}.

Add the column vectors D_{B2}-D_{B11} to the other regressor columns in (64) in order to obtain the following hedonic regression model:

$$(65)\ \ln P = \Sigma_{t=2}^{24} \rho_t D_t + b_0 ONE + \Sigma_{j=2}^{7} b_{Cj} D_{Cj} + \Sigma_{j=2}^{3} b_{Mj} D_{Mj} + \Sigma_{j=2}^{7} b_{Sj} D_{Sj} + \Sigma_{j=2}^{5} b_{Pj} D_{Pj} + b_{H2} D_{H2} + \Sigma_{j=2}^{11} b_{Bj} D_{Bj} + e.$$

The log of the likelihood function for the hedonic regression defined by (65) was 754.295, a gain of 704.796 log likelihood points for adding 10 new brand parameters. The R^2 between the observed price vector and the predicted price vector was 0.8631 which is a very big increase over the R^2 of the previous model which was equal to 0.7764. The estimated brand coefficients b_{B2}^*- b_{B11}^* are as follows: – 0.1014, 0.1366, 0.0975, 0.1201, 0.5048, 0.4136, 0.1469, 0.4743, 0.2880, 0.6401. Thus there is a general tendency for the marginal utility of a more expensive brand to be higher than the marginal utility of a cheaper brand.

The estimated coefficients on the time dummy variables in this regression are ρ_2^*, ρ_3^*, …, ρ_{24}^*. Define $\rho_1^* \equiv 0$ and the estimated period t price levels $\pi_t^* \equiv \exp[\rho_t^*]$ for t = 1,2,…,24. Define the month t *Time Dummy Characteristics Price Index*, $P_{TDC}^t \equiv \pi_t^*$ for t = 1,…,24. This index is listed in Table 4 in the following subsection.

The same definitions can be applied to the results of the hedonic regressions defined in sections 4.2-4.6; i.e., use the estimated ρ_t^* generated by these 5 hedonic regressions to define the corresponding (incomplete) Time Dummy Characteristics Price Indexes, which we will denote by P_C^t, P_{CM}^t, P_{CMS}^t, P_{CMSP}^t and P_{CMSPH}^t for the hedonic regression models defined in sections 4.2, 4.3, 4.4, 4.5 and 4.6 respectively. These indexes are also listed in Table 4 below.

4.8 The Weighted Time Dummy Characteristics Hedonic Regression Model.

The price indexes defined in sections 4.2-4.7 can be constructed by using information on product prices and the amounts of the various characteristics of each product. If in addition, information on quantities sold or purchased during each month in scope is available, then Weighted Time Dummy Characteristics price indexes can be constructed using the algebra around equations (46)-(52) in section 3 above.

Recall that the expenditure share that corresponds to purchased product n in month t is defined as $s_{tn} = p_{tn}q_{tn}/\Sigma_{j\in S(t)}\, p_{tj}q_{tj}$ for t = 1,…,24 and $n\in S(t)$. To obtain the weighted counterpart to the hedonic regression model defined by (64) above, we just form a share vector of dimension 2639 that corresponds to the $\ln p_{tn}$ that appear in (64) and then form a new vector of dimension 2639 that consists of the positive square roots of each s_{tn}. Call this vector of square roots SS. Now multiply both sides of (64) by SS to obtain a new linear regression model which again provides estimates for the unknown parameters that appear in (64). The R^2 for this new weighted regression model turned out to be 0.8915 which is substantially higher than the R^2 for the counterpart unweighted model which was 0.8631.

The parameter estimates for this weighted hedonic regression model are listed in Table 3 below. This is our preferred regression from all of the regression models that have been presented thus far.

Table 3: Parameter Estimates for the Weighted Time Dummy Characteristics Hedonic Regression

Coef	Estimate	Std. Error	T Stat	Coef	Estimate	Std. Error	T Stat
b_0^*	-1.1981	0.03714	-32.260	b_{C5}^*	0.2919	0.01477	19.760
ρ_2^*	0.0156	0.01791	0.870	b_{C6}^*	0.2495	0.01661	15.020
ρ_3^*	0.0299	0.01797	1.662	b_{C7}^*	0.3400	0.01798	18.910
ρ_4^*	0.0321	0.01805	1.776	b_{M2}^*	0.2393	0.01017	23.540
ρ_5^*	0.0224	0.01803	1.245	b_{M3}^*	0.5720	0.01687	33.900
ρ_6^*	0.0079	0.01809	0.439	b_{S2}^*	0.3568	0.03430	10.400
ρ_7^*	-0.0200	0.01813	-1.104	b_{S3}^*	0.4556	0.03246	14.040
ρ_8^*	-0.0235	0.01818	-1.296	b_{S4}^*	0.2590	0.03266	7.929
ρ_9^*	-0.0336	0.01823	-1.841	b_{S5}^*	0.3045	0.03150	9.665
ρ_{10}^*	-0.0260	0.01824	-1.427	b_{S6}^*	0.4730	0.04071	11.620
ρ_{11}^*	-0.0540	0.01827	-2.958	b_{S7}^*	0.5134	0.03508	14.640
ρ_{12}^*	-0.0884	0.01831	-4.829	b_{P2}^*	0.1488	0.01320	11.270
ρ_{13}^*	-0.0986	0.01833	-5.383	b_{P3}^*	0.4560	0.03566	12.790
ρ_{14}^*	-0.1042	0.01834	-5.679	b_{P4}^*	0.7055	0.04659	15.140
ρ_{15}^*	-0.0954	0.01845	-5.167	b_{P5}^*	0.5220	0.03061	17.050
ρ_{16}^*	-0.0765	0.01850	-4.136	b_{H2}^*	0.2996	0.02048	14.630
ρ_{17}^*	-0.0870	0.01859	-4.680	b_{B2}^*	-0.2059	0.02512	-8.197
ρ_{18}^*	-0.0974	0.01863	-5.229	b_{B3}^*	0.0021	0.03626	0.057
ρ_{19}^*	-0.0937	0.01873	-5.003	b_{B4}^*	-0.0575	0.02363	-2.435
ρ_{20}^*	-0.1110	0.01871	-5.932	b_{B5}^*	-0.0618	0.14650	-0.422
ρ_{21}^*	-0.1233	0.01870	-6.593	b_{B6}^*	0.3191	0.02316	13.780
ρ_{22}^*	-0.1174	0.01871	-6.276	b_{B7}^*	0.2144	0.02375	9.027
ρ_{23}^*	-0.1028	0.01877	-5.477	b_{B8}^*	0.0306	0.02984	1.025
ρ_{24}^*	-0.0823	0.01872	-4.394	b_{B9}^*	0.3261	0.02414	13.510
b_{C2}^*	0.1565	0.01219	12.840	b_{B10}^*	0.1684	0.03378	4.985
b_{C3}^*	0.2821	0.01447	19.490	b_{B11}^*	0.5110	0.15800	3.235
b_{C4}^*	0.2301	0.01399	16.450				

There are 53 parameters in this regression model that are estimated with 2586 degrees of freedom for the error terms. It can be seen that the clock speed parameters b_{Cj}^* are only weakly increasing with respect to j; the memory capacity parameters b_{M2}^* and b_{M3}^* are monotonically increasing; the screen size parameters b_{Sj}^* exhibit a U shaped pattern; the pixel parameters b_{Pj}^t are monotonically increasing; the HDMI parameter b_{H2}^* is positive which indicates that the availability of HDMI is valued by purchasers and the brand parameters b_{Bj}^* are weakly increasing so that the higher price brands are weakly preferred by purchasers.

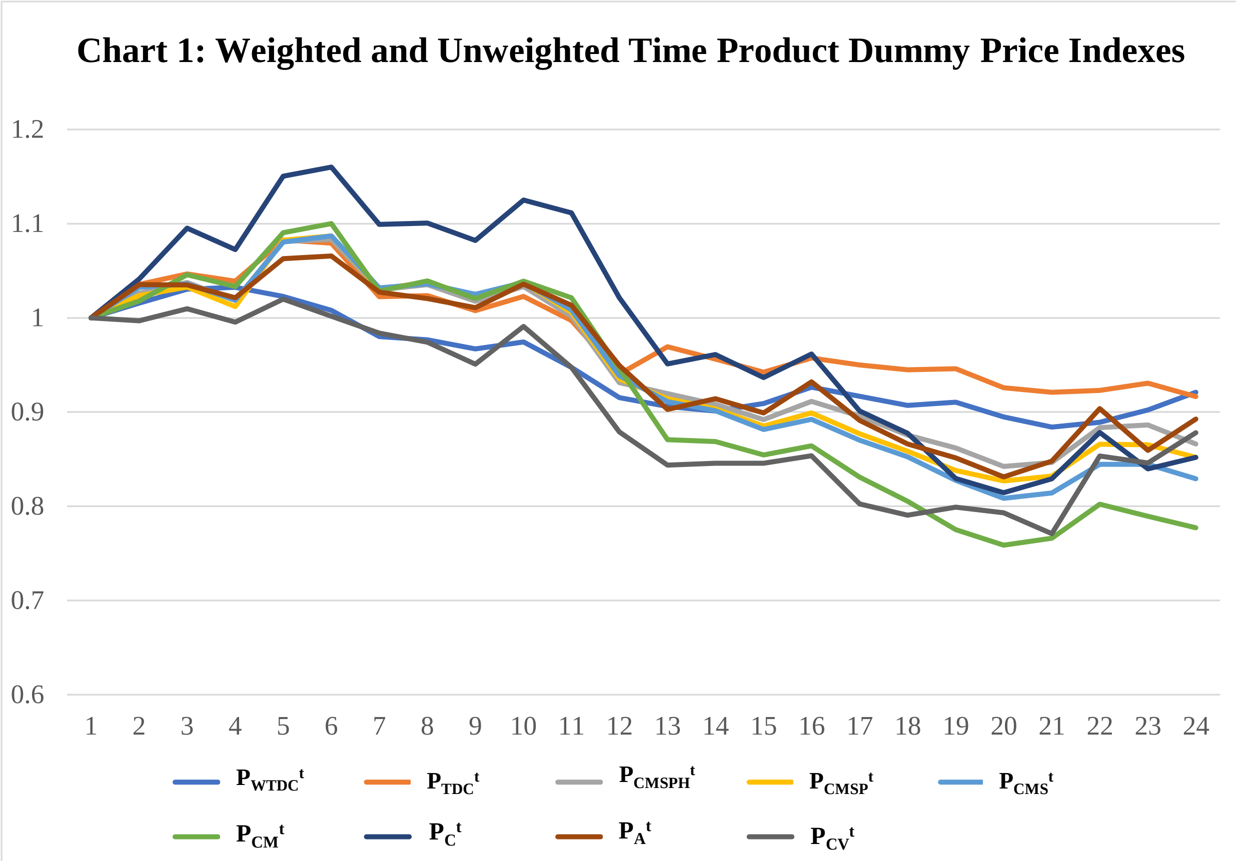
The estimated coefficients on the time dummy variables in this regression are ρ_2^*, ρ_3^*, …, ρ_{24}^*. Define $\rho_1^* \equiv 0$ and the estimated period t price levels $\pi_t^* \equiv \exp[\rho_t^*]$ for t = 1,2,…,24. Define the month t *Weighted Time Dummy Characteristics Price Index*, $P_{WTDC}^t \equiv \pi_t^*$ for t = 1,…,24. This index is listed in Table 4 (and plotted in Chart 1 below) and it is our a priori preferred index thus far. The corresponding unweighted (or equally weighted) Time Dummy Characteristics Price Index P_{TDC}^t is also listed in Table 4 along with the unweighted Time Dummy Characteristics Indexes that are based on the regression models explained in sections 4.2-4.6. (P_C^t, P_{CM}^t, P_{CMS}^t, P_{CMSP}^t and P_{CMSPH}^t). For comparison purposes, we also list the simple average laptop price indexes P_A^t and P_{UV}^t defined by definitions (55) in section 4.1.

Table 4: Weighted and Unweighted Time Product Dummy Price Indexes

Month t	P_{WTDC}^t	P_{TDC}^t	P_{CMSPH}^t	P_{CMSP}^t	P_{CMS}^t	P_{CM}^t	P_C^t	P_A^t	P_{UV}^t
1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
2	1.01571	1.03561	1.02620	1.02367	1.03230	1.01802	1.04123	1.03525	0.99703
3	1.03031	1.04665	1.03749	1.03260	1.03625	1.04575	1.09513	1.03503	1.00972
4	1.03257	1.03888	1.01851	1.01209	1.01869	1.03329	1.07238	1.02127	0.99538
5	1.02270	1.08280	1.08117	1.08253	1.08039	1.09031	1.15033	1.06279	1.02001
6	1.00797	1.07931	1.08333	1.08702	1.08707	1.10019	1.16008	1.06571	1.00173
7	0.98019	1.02240	1.02998	1.03049	1.03178	1.02851	1.09930	1.02721	0.98386
8	0.97673	1.02372	1.03536	1.03810	1.03602	1.03931	1.10055	1.02049	0.97422
9	0.96699	1.00763	1.01763	1.02219	1.02510	1.02037	1.08231	1.01082	0.95086
10	0.97431	1.02289	1.03329	1.03757	1.03760	1.03905	1.12498	1.03594	0.99085
11	0.94739	0.99707	1.00181	1.00575	1.00859	1.02131	1.11137	1.01327	0.94737
12	0.91540	0.94035	0.93111	0.93514	0.93850	0.94626	1.02127	0.94941	0.87888
13	0.90607	0.96932	0.91955	0.91411	0.91098	0.87076	0.95127	0.90281	0.84358
14	0.90108	0.95629	0.90833	0.90348	0.90146	0.86859	0.96108	0.91423	0.84563
15	0.90905	0.94247	0.89198	0.88531	0.88158	0.85448	0.93678	0.89907	0.84560
16	0.92634	0.95733	0.91131	0.89907	0.89222	0.86409	0.96173	0.93198	0.85366
17	0.91669	0.95014	0.89575	0.87694	0.87007	0.83104	0.90118	0.89127	0.80235
18	0.90717	0.94491	0.87540	0.85854	0.85243	0.80523	0.87761	0.86620	0.79067
19	0.91053	0.94595	0.86200	0.83793	0.82751	0.77520	0.82961	0.85147	0.79919
20	0.89493	0.92595	0.84228	0.82701	0.80855	0.75867	0.81446	0.83124	0.79319
21	0.88399	0.92104	0.84667	0.83211	0.81405	0.76625	0.82925	0.84793	0.77090
22	0.88920	0.92314	0.88356	0.86600	0.84461	0.80207	0.87828	0.90356	0.85345
23	0.90231	0.93081	0.88640	0.86528	0.84447	0.78950	0.83986	0.85940	0.84609
24	0.92102	0.91645	0.86613	0.85195	0.82916	0.77719	0.85181	0.89247	0.87814
Mean	0.94744	0.98255	0.95355	0.94687	0.94206	0.92273	0.98716	0.95287	0.90302

The results in Table 4 and Chart 1 are not very plausible. Our preferred hedonic index, P_{WTDC}^t, ends up at 0.92101 when t = 24 which is well above the simple average price indexes P_A^t and P_{UV}^t for t = 24 (which ended up at 0.89247 and 0.87814). It seems unlikely that a quality adjusted price index for laptops could end up *higher* than a simple average price index for laptops. *The above results also show that missing characteristics can greatly affect the resulting hedonic price index*.

Although the weighted and unweighted time product characteristic indexes end up fairly close to each other in month 24 (0.92102 for the weighted index and 0.91645 for the unweighted hedonic index), there are substantial month to month differences between the two indexes. Moreover the mean of the weighted indexes P_{WTPC}^t (0.94744) is substantially below the mean of the unweighted indexes P_{TPC}^t (0.98255). Our conclusion here is that *weighting for laptops matters* and the weighted index should be produced by statistical agencies if price and quantity information is available.



4.9 Direct and Indirect Weighted Time Dummy Characteristics Price Indexes.

In this section, we will illustrate the relationship between *direct and indirect price levels* that can be derived from the hedonic regression described in section 4.8. We will use the results around equations (42)-(52) in section 3.

In section 4.8, we defined the estimated direct monthly price levels, π_t^*, by exponentiating the estimated coefficients ρ_t^*. Define the month t *direct price level* P^{t*} as follows:

(66) $P^{t*} \equiv \pi_t^* = P_{WTDC}^t$; t = 1,…,24.

Because $\pi_1^* = 1$, the directly estimated monthly price levels P^{t*} also equal the corresponding Weighted Time Dummy Characteristics price indexes, P_{WTDC}^t, which are listed in Table 4 above.

Define month t *total expenditures* (or sales) of laptops in our sample, e^t, as follows:

(67) $e^t \equiv \Sigma_{n\in S(t)}\, p_{tn}q_{tn}$; t = 1,..,24.

The (indirectly) estimated *aggregate quantity level* for month t, Q^{t*}, is defined by deflating month t expenditures e^t by P^{t*}:

(68) $Q^{t*} \equiv e^t/P^{t*}$; t = 1,…,24.

P^{t*}, e^t and Q^{t*} are listed in Table 5 below.

We now show how the parameter estimates listed in Table 4 above can be used to form monthly direct aggregate quantity indexes Q^{t**} for each month t. First, form the vector of dimension 2639 of *logarithms of the product quality adjustment parameters* β^* as follows:

$$(69)\ \beta^* \equiv b_0^*ONE + \Sigma_{j=2}^7 b_{Cj}^*D_{Cj} + \Sigma_{j=2}^3 b_{Mj}^*D_{Mj} + \Sigma_{j=2}^7 b_{Sj}^*D_{Sj} + \Sigma_{j=2}^5 b_{Pj}^*D_{Pj} + b_{H2}^*D_{H2} + \Sigma_{j=2}^{11} b_{Bj}^*D_{Bj}.$$

Denote the component of β^* that corresponds to product n sold in month t by β_{tn}^* for t = 1,…,24 and $n\in S(t)$. Define the quality adjustment parameter for purchased product n in period t, α_{tn}^*, by exponentiating β_{tn}^*:

$$(70)\ \alpha_{tn}^* \equiv \exp[\beta_{tn}^*]\ ; \qquad t = 1,\ldots,24;\ n\in S(t).$$

Using the above quality adjustment parameters α_{tn}^*, we can form a month t *direct estimate for the aggregate quantity* or *utility* obtained by purchasers during period t:

$$(71)\ Q^{t**} \equiv \Sigma_{n\in S(t)}\ \alpha_{tn}^*q_{tn}\ ; \qquad t = 1,\ldots,24.$$

The corresponding month t *indirect price level*, P^{t**}, is defined by deflating month t expenditure e^t by the month t aggregate quantity Q^{t**}:

$$(72)\ P^{t**} \equiv e^t/Q^{t**} = \Sigma_{n\in S(t)}\ p_{tn}q_{tn}/\Sigma_{n\in S(t)}\ \alpha_{tn}^*q_{tn}\ ; \qquad t = 1,\ldots,24.$$

The price and quantity level series, P^{t**} and Q^{t**}, are listed in Table 5 below. It can be seen P^{t*}, P^{t**}, Q^{t*} and Q^{t**} satisfy the de Haan inequalities (52); i.e., these series satisfy the following inequalities:

$$(73)\ P^{t**} \le P^{t*} \text{ and } Q^{t**} \ge Q^{t*}\ ; \qquad t = 1,\ldots,24.$$

If the R^2 for the weighted hedonic regression defined in section 4.8 were equal to 1, then the direct and indirectly defined monthly price and quantity levels would coincide; i.e., we would have $P^{t**} = P^{t*}$ and $Q^{t**} = Q^{t*}$ for t = 1,…,24.

The indirectly defined price *level* series, P^{t**}, can be turned into the *Weighted Time Dummy Characteristics Price Index* series, P_{WTPC}^t, by dividing the P^{t**} by P^{1**}:

$$(74)\ P_{IWTPC}^t \equiv P^{t**}/P^{1**}\ ; \qquad t = 1,\ldots,24.$$

The series P_{WTPC}^t is also listed in Table 5.

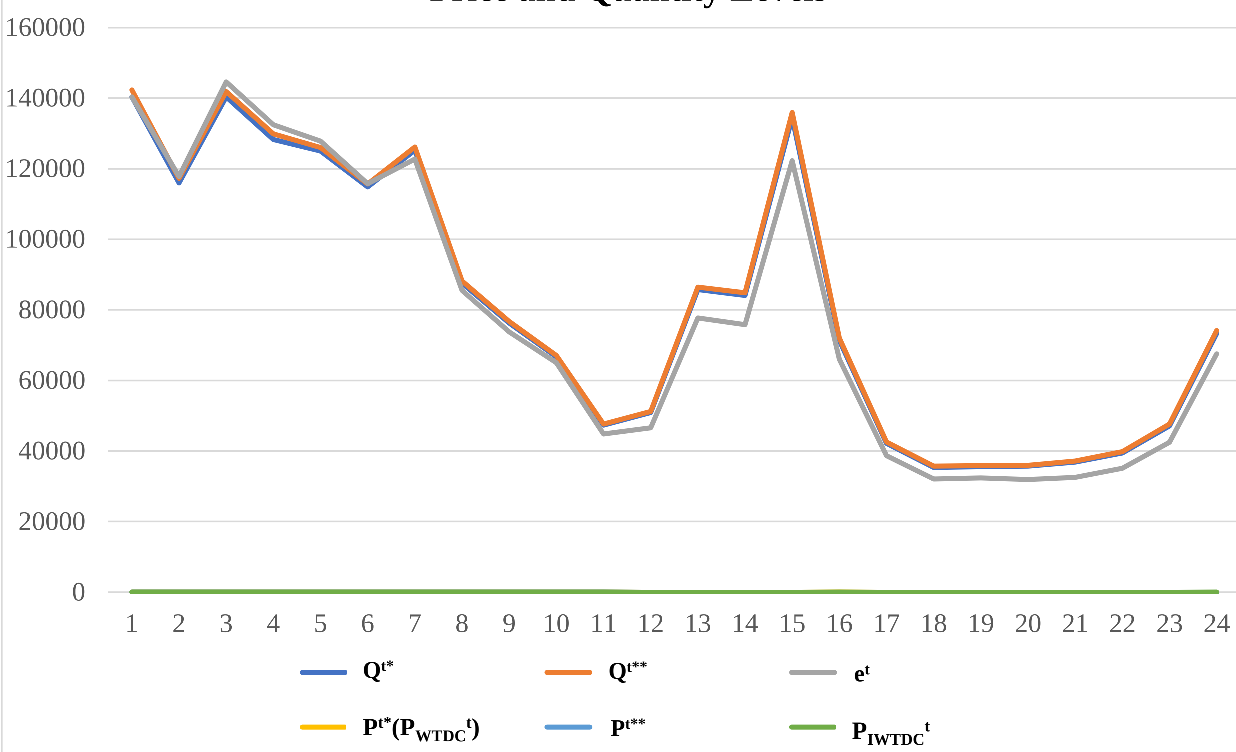
Table 5: Direct and Indirect Weighted Time Dummy Characteristics Price and Quantity Levels

Month t	Q^{t*}	Q^{t**}	e^t	P^{t*} (P_{WTDC}^t)	P^{t**}	P_{IWTDC}^t
1	140388	142306	140388	1.00000	0.98653	1.00000
2	115958	117271	117780	1.01571	1.00434	1.01806
3	140351	141842	144604	1.03031	1.01948	1.03340
4	128314	129847	132494	1.03257	1.02039	1.03433

5	**125022**	**126026**	**127860**	**1.02270**	**1.01455**	**1.02841**
6	**114803**	**115637**	**115717**	**1.00797**	**1.00069**	**1.01436**
7	**125235**	**126134**	**122755**	**0.98019**	**0.97321**	**0.98650**
8	**87567**	**88148**	**85529**	**0.97673**	**0.97028**	**0.98354**
9	**76291**	**76718**	**73773**	**0.96699**	**0.96161**	**0.97474**
10	**66703**	**67084**	**64990**	**0.97431**	**0.96879**	**0.98202**
11	**47313**	**47594**	**44824**	**0.94739**	**0.94181**	**0.95468**
12	**50869**	**51213**	**46566**	**0.91540**	**0.90925**	**0.92167**
13	**85751**	**86402**	**77696**	**0.90607**	**0.89924**	**0.91152**
14	**84089**	**84823**	**75771**	**0.90108**	**0.89329**	**0.90549**
15	**134545**	**135966**	**122309**	**0.90905**	**0.89955**	**0.91184**
16	**71296**	**72011**	**66044**	**0.92634**	**0.91713**	**0.92966**
17	**42172**	**42550**	**38659**	**0.91669**	**0.90855**	**0.92096**
18	**35359**	**35711**	**32077**	**0.90717**	**0.89822**	**0.91048**
19	**35549**	**35853**	**32369**	**0.91053**	**0.90282**	**0.91515**
20	**35699**	**35957**	**31948**	**0.89493**	**0.88851**	**0.90065**
21	**36822**	**37186**	**32550**	**0.88399**	**0.87535**	**0.88730**
22	**39437**	**39776**	**35067**	**0.88920**	**0.88161**	**0.89366**
23	**47104**	**47636**	**42502**	**0.90231**	**0.89222**	**0.90441**
24	**73319**	**74114**	**67528**	**0.92102**	**0.91114**	**0.92358**
Mean	**80832**	**81575**	**77992**	**0.94744**	**0.93911**	**0.95193**

It can be seen that the direct and indirectly defined Weighted Time Dummy Characteristic Price Indexes, $P_{WTPC}{}^t$ and $P_{IWTPC}{}^t$, are fairly close to each other but both indexes seem to end up implausibly high; see Chart 2. Thus in the following section, we will implement adjacent period hedonic regressions using the same 6 characteristics.

Chart 2: Direct and Indirect Weighted Time Dummy Characteristics Price and Quantity Levels



5. Adjacent Period Characteristics Hedonic Regression Models.

There are two problems with our "best" directly defined weighted hedonic price index using characteristics, $P_{WTPC}{}^{t}$, which was defined in the previous section:

- It is not a real time index; i.e., it is a retrospective index that is calculated using the data covering two years;[32]
- It does not allow for gradual taste change on the part of purchasers.

These difficulties can be avoided if we restrict the number of months T to be equal to 2. This restriction leads to adjacent period hedonic regressions.[33] Thus we can use the analytical framework presented in section 3 and simply apply it to the case where T = 2.

To start the adjacent period methodology, we use the price data for products n that were sold in months 1 and 2. We also use data on the 6 characteristics of the products that were used in section 4.7 above. The counterpart regression to the unweighted time dummy characteristic hedonic regression defined by (65) in section 4.7 becomes the following regression model:

$$(75)\ \ln P = \rho_2 D_2 + b_0 ONE + \Sigma_{j=2}{}^{7}\, b_{Cj}\, D_{Cj} + \Sigma_{j=2}{}^{3}\, b_{Mj} D_{Mj} + \Sigma_{j=2}{}^{7}\, b_{Sj} D_{Sj} + \Sigma_{j=2}{}^{5}\, b_{Pj} D_{Pj} + b_{H2} D_{H2} + \Sigma_{j=2}{}^{11}\, b_{Bj} D_{Bj} + e$$

where lnP is now the vector of log prices for the products which were sold only in months 1 and 2. Similarly, the vectors of independent variables on the right hand side of (75) are not of dimension 2639 but only of dimension equal to the number of products that were sold in months 1 and 2. Note that there is only a single time dummy variable D_2 on the right hand side of 75 and the nt component of D_2 takes on the value 1 for the products sold in month 2 and the value 0 for the products sold in month 1. The definitions for the other characteristic dummy variables on the right hand side of (75) are similar to our earlier panel wide definitions but now these characteristic dummy variables are only defined for products that were sold in months 1 and 2.[34]

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[32] This difficulty can be overcome by using rolling window hedonic regressions. See Diewert and Fox (2022; 360-361) for a discussion of the issues surrounding linking the results from a new panel of data with the results from a previous panel.
[33] For references to the history of this approach to hedonic regressions, see the many references in Diewert (2022) (2023).
[34] However, some complications occurred when implementing the above operations. When the data were restricted to 2 adjacent periods instead of the entire 2 years of data, some of the characteristic dummy variable vectors became zero vectors. To deal with this problem, some of our characteristic dummy variable vectors were aggregated together. Thus the clock speed dummy variables for groups 6 and 7 were aggregated together to form a new group 6. The terms $\Sigma_{j=2}{}^{7}\, b_{Cj}\, D_{Cj}$ on the right hand side of (75) were replaced by the terms $\Sigma_{j=2}{}^{6}\, b_{Cj}\, D_{Cj}$. The screen size dummy variables for groups 1 and 2 were aggregated together as were the dummy variables for groups 6 and 7. Thus the terms $\Sigma_{j=2}{}^{7}\, b_{Sj} D_{Sj}$ on the right hand side of (75) were replaced by the terms $\Sigma_{j=2}{}^{5}\, b_{Sj} D_{Sj}$. Groups 4 and 5 for the pixel groups were aggregated together so that the terms $\Sigma_{j=2}{}^{5}\, b_{Pj} D_{Pj}$ were replaced by $\Sigma_{j=2}{}^{4}\, b_{Pj} D_{Pj}$. Brands 5 and 11 had only sales of 4 and 3 units respectively over the two years in our sample so these brands were aggregated together with Brand 3, another low sales brand. Thus the terms $\Sigma_{j=2}{}^{11}\, b_{Bj} D_{Bj}$ on the right hand side of (75) were replaced by the terms $\Sigma_{j=2}{}^{9}\, b_{Bj} D_{Bj}$. Finally, even after making these reductions in the number of characteristic dummy variables, it turned out that occasionally, one or more of the consolidated characteristic dummy variable vectors in the 23 bilateral hedonic regressions was equal to a vector of zeros. These vectors were dropped from the applicable adjacent period regression.

Define $P^{1*} \equiv 1$ as the month 1 index level. Define ρ_2^* as the estimated month 2 time dummy coefficient for the bilateral regression defined by (75)[35] and define π_2^* as the exponential of ρ_2^*; i.e., define $\pi_2^* \equiv \exp[\rho_2^*]$. Define the month 2 direct price level as $P^{2*} \equiv \pi_2^*$.

Next, we restricted the definition of lnP to the products that were sold only in months 2 and 3. The new adjacent period hedonic regression was similar to the one defined by (75) except the time dummy term $\rho_2 D_2$ on the right hand side of (75) was replaced with the term $\rho_3 D_3$ where D_3 takes on the value 1 for the products sold in month 3 and the value 0 for the products sold in month 2. Once ρ_3^* was estimated, we defined $\pi_3^* \equiv \exp[\rho_3^*]$ and the period 3 price level as $P^{3*} \equiv \pi_3^* P^{2*}$.

The above procedure was continued until we reached the final bilateral regression that used only the log product prices for products that were sold in months 23 and 24. The final bilateral hedonic regression gave us an estimate for ρ_{24}^*. Once ρ_{24}^* was estimated, we defined $\pi_{24}^* \equiv \exp[\rho_{24}^*]$ and the period 24 price level was defined as $P^{24*} \equiv \pi_{24}^* P^{23*}$. The *Adjacent Period Time Product* (Unweighted) *Characteristics Price Index* for month t, P_{ATPC}^t, was defined as follows:

$$(76)\quad P_{ATPC}^t \equiv P^{t*}/P^{1*} ; \qquad t = 1,\ldots,24.$$

The price index defined by (76) is not satisfactory because it does not take into account the economic importance of each product. The economic importance of product n sold in period t can be taken into account in the 23 bilateral regressions of the form given by (75) by multiplying the log price $\ln p_{tn}$ that appears in any of these bilateral hedonic regressions by the square root of the corresponding expenditure share $s_{tn}^{1/2}$. The term $s_{tn}^{1/2}$ is also applied to the corresponding components of the various dummy variable vectors that appear on the right hand sides of the estimating equations of the form given by (75). With the application of these multiplicative factors on both sides of the various estimating equations, we again obtain estimates for the logarithms of the various bilateral time dummy coefficients $\rho_2^*, \rho_3^*, \ldots, \rho_{24}^*$. Once these new estimates have been obtained, we took the exponentials of them to obtain the sequence of price levels π_t^* for t = 2,3,…,24. Now follow the same steps as were made in the paragraphs above definitions (76) in order to define the *Weighted Adjacent Period Time Product Characteristics Price Index* for month t, P_{WATPC}^t, for t = 1,2,…,24. This index along with its unweighted (or equally weighted) counterpart index, P_{ATPC}^t, are listed in Table 6 below. For comparison purposes, Table 6 also lists the single regression weighted and unweighted Time Dummy Characteristics price indexes, P_{WTDC}^t and P_{TDC}^t, as well as the simple average and unit value price indexes, P_A^t and P_{UV}^t.[36] See Chart 3 for plots of the indexes listed in Table 6.

Table 6: Sample Wide and Adjacent Period Weighted and Unweighted Characteristics Price Indexes

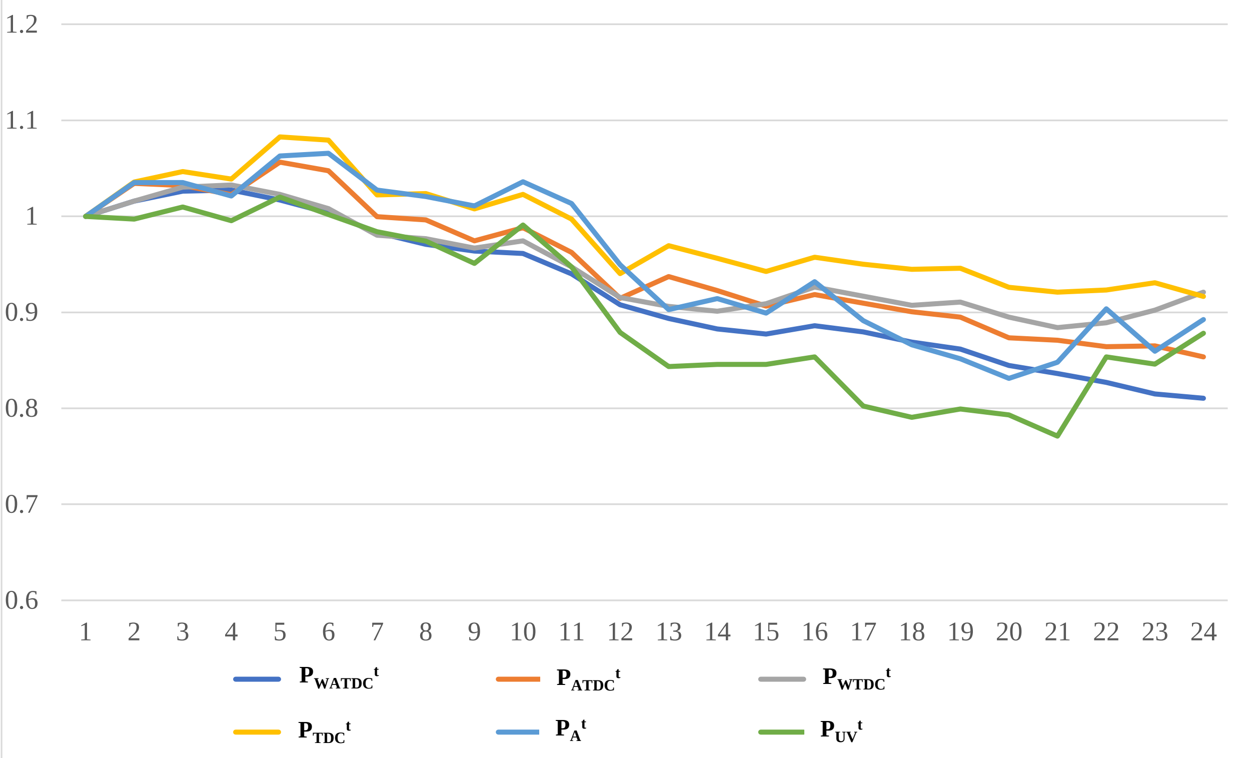
Month t	P_{WATDC}^t	P_{ATDC}^t	P_{WTDC}^t	P_{TDC}^t	P_A^t	P_{UV}^t
1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
2	1.01597	1.03434	1.01571	1.03561	1.03525	0.99703
3	1.02612	1.03214	1.03031	1.04665	1.03503	1.00972
4	1.02732	1.02268	1.03257	1.03888	1.02127	0.99538
5	1.01684	1.05650	1.02270	1.08280	1.06279	1.02001
6	1.00363	1.04757	1.00797	1.07931	1.06571	1.00173

[35] Taking into account the reduction in the number of cells for the various characteristics, (75) became: $\ln P = \rho_2 D_2 + b_0 ONE + \Sigma_{j=2}^6 b_{Cj} D_{Cj} + \Sigma_{j=2}^3 b_{Mj} D_{Mj} + \Sigma_{j=2}^4 b_{Sj} D_{Sj} + \Sigma_{j=2}^4 b_{Pj} D_{Pj} + b_{H2} D_{H2} + \Sigma_{j=2}^9 b_{Bj} D_{Bj} + e$.

[36] These latter four indexes were listed in Table 4.

7	0.98301	0.99975	0.98019	1.02240	1.02721	0.98386
8	0.97090	0.99619	0.97673	1.02372	1.02049	0.97422
9	0.96368	0.97454	0.96699	1.00763	1.01082	0.95086
10	0.96133	0.98820	0.97431	1.02289	1.03594	0.99085
11	0.94000	0.96227	0.94739	0.99707	1.01327	0.94737
12	0.90779	0.91460	0.91540	0.94035	0.94941	0.87888
13	0.89365	0.93709	0.90607	0.96932	0.90281	0.84358
14	0.88269	0.92254	0.90108	0.95629	0.91423	0.84563
15	0.87733	0.90649	0.90905	0.94247	0.89907	0.84560
16	0.88593	0.91854	0.92634	0.95733	0.93198	0.85366
17	0.87962	0.90962	0.91669	0.95014	0.89127	0.80235
18	0.86894	0.90062	0.90717	0.94491	0.86620	0.79067
19	0.86163	0.89505	0.91053	0.94595	0.85147	0.79919
20	0.84450	0.87334	0.89493	0.92595	0.83124	0.79319
21	0.83613	0.87088	0.88399	0.92104	0.84793	0.77090
22	0.82692	0.86431	0.88920	0.92314	0.90356	0.85345
23	0.81487	0.86516	0.90231	0.93081	0.85940	0.84609
24	0.81055	0.85353	0.92102	0.91645	0.89247	0.87814
Mean	0.92081	0.94775	0.94744	0.98255	0.95287	0.90302

Chart 3: Sample Wide and Adjacent Period Weighted and Unweighted Characteristics Price Indexes



It can be seen that the adjacent period equally weighted characteristics index P_{ATDC}^t finishes above its weighted counterpart P_{WATDC}^t for t = 24 and on average, P_{ATDC}^t is 2.7 percentage points above the average for P_{WATDC}^t. Since this equally weighted index gives too much weight to unrepresentative products, we prefer the Weighted Adjacent Period Time Dummy Characteristics Index P_{WATDC}^t. Although P_{WATDC}^t. index finishes substantially below the month 24 Unit Value Price Index P_{UV}^{24}, we note that the average of the

$P_{WATDC}{}^t$ is 0.92081, which is substantially higher than the average of the Unit Value Price Index $P_{UV}{}^t$. Thus it seems that the quality adjustment provided by the quality adjusted indexes exhibited thus far is incomplete.

Here are some of the advantages and disadvantages of the Weighted Adjacent Period Time Dummy Characteristics indexes $P_{WATDC}{}^t$ over the Weighted Time Dummy Characteristics indexes $P_{WTPC}{}^t$:

- The adjacent period indexes fit the data much better since each bilateral regression estimates a new set of quality adjustment parameters whereas the panel regression approach fixes the quality adjustment parameters over the entire window of observations.
- If the number of characteristics is large relative to the number of observations in a bilateral regression, the estimates for the quality adjustment parameters could be unreliable which could lead to unreliable estimates for the price levels.
- The adjacent period methodology that allows the quality adjustment parameters to change every month means that purchasers may not have stable consistent preferences over time and some economists may object to this fact.

The results presented in sections 4 and 5 of this paper indicate that missing characteristics can have a material effect on the price index. A model that includes all possible product characteristics[37] is the Time Product Dummy model presented in section 2. Thus in the following section, we will consider weighted and unweighted time product dummy hedonic regression models.

6. Time Product Dummy Variable Regression Models.

The Weighted Time Product Dummy least squares minimization problem was defined by (20). To obtain a unique solution to this problem, we added the normalization $\rho_t = 0$. The corresponding equally weighted Unweighted Time Product Dummy least squares minimization problem is defined by (20) with all expenditure shares s_{tn} set equal to 1.

In order to set up the unweighted regression problem for our particular application, we make us of the vectors of time dummy variables, $D_1, \ldots, D_{24}$, which were defined in section 4.1 above. This section also defined the 366 product dummy variable vectors of dimension 2639, $D_{J1}, \ldots, D_{J366}$. Define the vector of the logarithms of observed laptop prices as lnP as was done in previous sections. Then the unweighted Time Product Dummy regression model can be expressed as the following estimating equation for the log price levels $\rho_2, \rho_3, \ldots, \rho_{24}$ and the 366 product log quality adjustment factors $\beta_1, \beta_2, \ldots, \beta_{366}$:

(77) $\ln P = \Sigma_{t=2}{}^{24} \rho_t D_t + \Sigma_{k=1}{}^{366} \beta_k D_{Jk} + e^t$.

The R^2 for the above regression turned out to be 0.9836. We set $\rho_t{}^*$ equal to one. The estimated $\rho_t{}^*$ were exponentiated and the sequence of the $\pi_t{}^* \equiv \exp[\rho_t{}^*]$ are the *Time Product Dummy Price Indexes* $P_{TPD}{}^t$ which are listed in Table 7 below.

[37] There may be external environmental factors (that change over time) which affect the utility to purchasers of the products in scope. Also, the "newness" or "oldness" of a product may affect purchaser utility. A fashion product is a product whose utility falls due to the length of time the product has been available in the marketplace. A proven or reliable product is a product whose utility rises as the length of time it has been available for purchase. It is possible to measure this effect using a hedonic regression approach but we do not include the "newness" of a product as a price determining characteristic in this study.

To obtain the Weighted Time Product Dummy Price Indexes, multiply the vectors on both sides of (77) (excluding the error vector e) by the vector of positive square roots of the month by month expenditure shares s_{tn} on the products which were purchased in each period. The resulting linear regression in the same parameters $\rho_2, \rho_3, \ldots, \rho_{24}$ and $\beta_1, \beta_2, \ldots, \beta_{366}$ was run and the R^2 for this weighted time product dummy regression turned to be 0.9840. Again, set ρ_t^* equal to one. The estimated ρ_t^* were exponentiated and the new sequence of the $\pi_t^* \equiv \exp[\rho_t^*]$ are the *Weighted Time Product Dummy Price Indexes* P_{WTPD}^t which are listed in Table 7 below.

As in the previous section, we can calculate adjacent period time product dummy regressions.

To start the adjacent period methodology, we use the price data for products n that were sold in months 1 and 2. Define S(1,2) as the set of products that were purchased in months 1 and 2. The counterpart regression to the unweighted time product dummy hedonic regression defined by (77) that links the prices of months 1 and 2 is the following regression model:

$$(78)\ \ln P^* = \rho_2 D_2^* + \Sigma_{k=1}^{366}\, \beta_k D_{Jk}^* + e^t$$
$$= \rho_2 D_2^* + \Sigma_{k\in S(1,2)}\, \beta_k D_{Jk}^* + e^t$$

where the new log price vector $\ln P^*$, the new month 2 time dummy vector D_2^* and the new product dummy vectors $D_{J1}^*, \ldots, D_{J366}^*$ are only defined for products n that were actually sold in periods 1 and 2. The first vector equation in (78) cannot be implemented using standard econometric packages because due to rapid product turnover, most of the product dummy variable vectors D_{Jk}^* will be vectors of zeros. Thus the second line in (78) sums over the nonzero product dummy vectors.[38]

In any case, 23 unweighted bilateral time product dummy variable regressions were run and the estimated ρ_t^* were converted into π_t^* and the π_t^* were chained into the Adjacent Period Time Product Dummy Price Indexes P_{ATPD}^t for t = 2, 3, …, 24. These indexes are listed in Table 7 below.[39]

As usual, to obtain Weighted Adjacent Period Time Product Dummy Price Indexes, P_{WAPD}^t we took the 23 bilateral regressions that were used to form the unweighted indexes and multiplied the dependent and independent variables in each of these regressions by the square root of the appropriate expenditure share.

Table 7 lists the Adjacent Period Weighted and Unweighted Time Product Dummy price indexes, P_{WATPD}^t and P_{ATPC}^t, as well as the simple average and unit value price indexes, P_A^t and P_{UV}^t.[40] Chart 4 plots the indexes listed in Table 7.

Table 7: Sample Wide and Adjacent Period Weighted and Unweighted Time Product Dummy Price Indexes

Month t	P_{WATPD}^t	P_{ATPD}^t	P_{WTPD}^t	P_{TPD}^t	P_A^t	P_{UV}^t

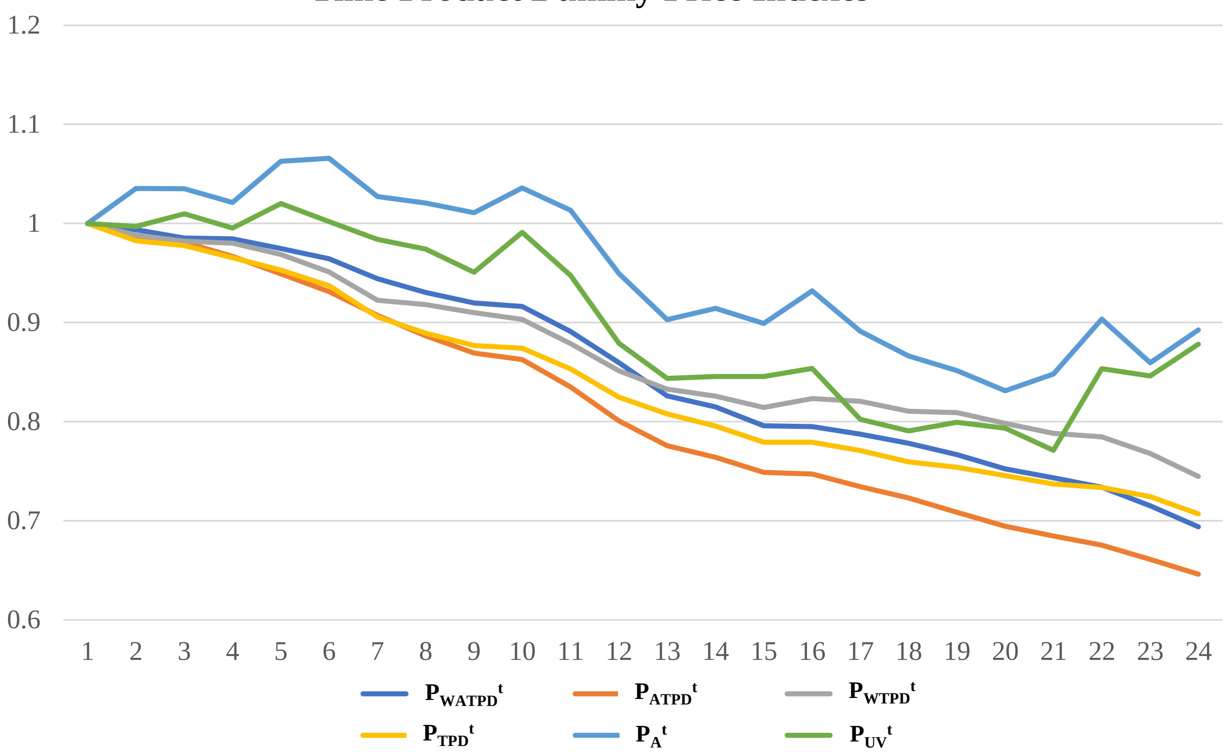
[38] It turned out to be somewhat difficult to go from line 1 in (78) to line 2 in (78). However, it is possible to construct programs that overcome these difficulties.

[39] The R^2 for the 23 bilateral Time Product Dummy regressions were as follows: 0.9993, 0.9985, 0.9979, 0.9988, 0.9991, 0.9988, 0.9991, 0.9976, 0.9987, 0.9980, 0.9980, 0.9985, 0.9974, 0.9980, 0.9989, 0.9993, 0.9987, 0.9989, 0.9980, 0.9986, 0.9990, 0.9988 and 0.9970. Needless to say, these regression fits are very good.

[40] These latter four indexes were also listed in Table 4.

1	**1.00000**	**1.00000**	**1.00000**	**1.00000**	**1.00000**	**1.00000**
2	**0.99358**	**0.98781**	**0.98828**	**0.98257**	**1.03525**	**0.99703**
3	**0.98526**	**0.98084**	**0.98205**	**0.97768**	**1.03503**	**1.00972**
4	**0.98456**	**0.96681**	**0.98006**	**0.96541**	**1.02127**	**0.99538**
5	**0.97476**	**0.94903**	**0.96878**	**0.95302**	**1.06279**	**1.02001**
6	**0.96444**	**0.93115**	**0.95087**	**0.93711**	**1.06571**	**1.00173**
7	**0.94422**	**0.90729**	**0.92250**	**0.90572**	**1.02721**	**0.98386**
8	**0.93034**	**0.88649**	**0.91801**	**0.88931**	**1.02049**	**0.97422**
9	**0.91971**	**0.86908**	**0.90983**	**0.87676**	**1.01082**	**0.95086**
10	**0.91611**	**0.86254**	**0.90323**	**0.87407**	**1.03594**	**0.99085**
11	**0.89088**	**0.83488**	**0.87881**	**0.85326**	**1.01327**	**0.94737**
12	**0.85948**	**0.80071**	**0.85129**	**0.82468**	**0.94941**	**0.87888**
13	**0.82589**	**0.77569**	**0.83276**	**0.80777**	**0.90281**	**0.84358**
14	**0.81473**	**0.76387**	**0.82554**	**0.79541**	**0.91423**	**0.84563**
15	**0.79577**	**0.74871**	**0.81431**	**0.77924**	**0.89907**	**0.84560**
16	**0.79492**	**0.74716**	**0.82328**	**0.77927**	**0.93198**	**0.85366**
17	**0.78726**	**0.73419**	**0.82048**	**0.77078**	**0.89127**	**0.80235**
18	**0.77805**	**0.72286**	**0.81037**	**0.75921**	**0.86620**	**0.79067**
19	**0.76665**	**0.70844**	**0.80906**	**0.75392**	**0.85147**	**0.79919**
20	**0.75214**	**0.69445**	**0.79830**	**0.74549**	**0.83124**	**0.79319**
21	**0.74318**	**0.68464**	**0.78818**	**0.73698**	**0.84793**	**0.77090**
22	**0.73369**	**0.67542**	**0.78460**	**0.73339**	**0.90356**	**0.85345**
23	**0.71498**	**0.66085**	**0.76781**	**0.72413**	**0.85940**	**0.84609**
24	**0.69385**	**0.64587**	**0.74478**	**0.70698**	**0.89247**	**0.87814**
Mean	**0.85685**	**0.81411**	**0.86972**	**0.83884**	**0.95287**	**0.90302**

Chart 4: Sample Wide and Adjacent Period Weighted and Unweighted Time Product Dummy Price Indexes



As usual, there are large differences between the weighted and unweighted Time Product Dummy price indexes with the unweighted indexes generating lower rates of laptop inflation. As usual, we prefer the weighted estimates over their unweighted counterparts due to the unrepresentative nature of the unweighted indexes. Finally, we prefer the Adjacent Period Weighted Time Product Dummy Indexes P_{WATPD}^t over their single regression counterpart indexes, the Weighted Time Product Dummy Indexes P_{WTPF}^t for two reasons: (i) the regressions which generate the P_{WATPD}^t fit the data much better than the single regression which generated the P_{WTPD}^t and (ii) the P_{WATPD}^t appear to be s biy smoother than the P_{WTPD}^t. P_{WATPD}^t is our preferred index thus far.

Our preferred index, the Adjacent Period Weighted Time Product Dummy Index P_{WATPD}^t, is a chained index and thus, it is subject to possible chain drift.[41] In order to reduce or eliminate possible chain drift, in the following section we will calculate Predicted Share Price Similarity linked indexes as well as some traditional indexes.

7. Similarity Linked Price Indexes for Laptops.

The indexes defined in the previous sections that made use of 23 adjacent period regressions were *chained* indexes; i.e., the index constructed for month t compared the prices for month t with the prices for month t − 1. However, it is not the case that all bilateral comparisons of prices between two months are equally accurate: if the relative prices for matched products in months r and t are very similar, then the Laspeyres and Paasche price indexes will be very close to each other and hence it is likely that the "true" price comparison between these two periods (using the economic approach to index number theory[42]) will be very close to the bilateral Fisher index that compares prices between the two periods under consideration. In particular, if the two price vectors are exactly proportional, then we would like the price index between these two months to be equal to the factor of proportionality (even if the associated quantity vectors are not proportional) and the direct Fisher price index between these two periods satisfies this proportionality test. This test suggests that a more accurate set of price indexes could be constructed if a bilateral comparison of prices was made between the two months that have the most *similar relative price* structures.[43] The *Predicted Share* method of linking months with the most similar structure of relative prices will be explained under the assumption that it is necessary to construct a price index P^t in real time.[44]

As a preliminary step, the price and quantity data that are listed in the Appendix need to be reorganized into 24 price and quantity vectors of dimension 366, $p^t \equiv [p_1{}^t,p_2{}^t,\ldots,p_{366}{}^t]$ and $q^t \equiv [q_1{}^t,q_2{}^t,\ldots,q_{366}{}^t]$, for $t = 1,\ldots,24$. If product k is not purchased during month t, then we set $p_k{}^t = q_k{}^t = 0$. For months r and t, define the set of products k that are present in both months as S(r,t). The *matched model Laspeyres and Paasche indexes*, $P_L(r,t)$ and $P_P(r,t)$, that relate the prices of month t to month r are defined as follows:

$$(79)\ P_L(r,t) \equiv \Sigma_{k\in S(r,t)}\, p_k{}^t q_k{}^r / \Sigma_{k\in S(r,t)}\, p_k{}^r q_k{}^r\ ; \qquad 1 \le r,\ t \le 24;$$

[41] Chain drift typically results from prices and quantities that exhibit large temporary fluctuations; see Szulc (1983) and Hill (1988). But the laptop price data seem to move quite smoothly so a priori, we did not think that chain drift would be a problem for this data set.
[42] See Diewert (1976) for the relationship of the Fisher index to the economic approach to index number theory.
[43] In the context of making comparisons of prices across countries, the method of linking countries with the most similar structure of relative prices has been pursued by Hill (1997) (1999a) (1999b) (2009), Hill and Timmer (2006), Diewert (2009) (2013) (2018) and Hill, Rao, Shankar and Hajargasht (2017). Hill (2001) (2004) also pursued this similarity of relative prices approach in the time series context.
[44] This method is explained more fully in Diewert (2023).

(80) $P_P(r,t) \equiv \Sigma_{k\in S(r,t)}\, p_k^t q_k^t / \Sigma_{k\in S(r,t)}\, p_k^r q_k^t$; $1 \le r, t \le 24.$

Note that the prices of the matched models for month t are in the numerators of definitions (78) and (79) and the corresponding prices of the matched models for month r in the denominators of definitions (78) and (79). The *matched model Fisher index* that relates the prices of month t to the prices of month r is defined as the geometric mean of $P_L(r,t)$ and $P_P(r,t)$:[45]

(81) $P_F(r,t) \equiv [P_L(r,t)P_P(r,t)]^{1/2}$; $1 \le r, t \le 24.$

The components s_k^t of the 24 vectors of month t expenditure shares on the 366 products, $s^t \equiv [s_1^t, s_2^t, \ldots, s_{366}^t]$, are defined as follows:

(82) $s_k^t \equiv p_k^t q_k^t / p^t \cdot q^t$; $t = 1,\ldots,24$; $k = 1,\ldots,366$

where the inner product of the vectors p^t and q^t is defined as $p^t \cdot q^t \equiv \Sigma_{k=1}^{366} p_k^t q_k^t$.

The choice of a measure of relative price similarity plays a key role in the similarity linking methodology. Various measures of the similarity or dissimilarity of relative price structures have been proposed by Allen and Diewert (1981), Kravis, Heston and Summers (1982; 104-106), Hill (1997) (2009), Sergeev (2001) (2009), Hill and Timmer (2006), Aten and Heston (2009) and Diewert (2009) (2023). A problem with most measures of relative price similarity is that they are not well defined if some products are missing. The following *Predicted Share measure of relative price dissimilarity*, $\Delta(p^r,p^t,q^r,q^t)$, is well defined even if some product prices in the two periods being compared are equal to zero:[46]

(83) $\Delta(p^r,p^t,q^r,q^t) \equiv \Sigma_{k=1}^{366} [s_k^t - (p_k^r q_k^t / p^r \cdot q^t)]^2 + \Sigma_{k=1}^{366} [s_k^r - (p_k^t q_k^r / p^t \cdot q^r)]^2$; $1 \le r, t \le 24.$

We require that $p^r \cdot q^t > 0$ for r = 1,...,24 and t = 1,...,24 in order for $\Delta(p^r,p^t,q^r,q^t)$ to be well defined for any pair of periods, r and t. Since the two summations on the right hand side of (83) are sums of squared terms, we see that $\Delta(p^r,p^t,q^r,q^t) \ge 0$. If $\Delta(p^r,p^t,q^r,q^t) = 0$, then the price vectors for months r and t are proportional. The closer $\Delta(p^r,p^t,q^r,q^t)$ is to 0, the closer prices are to being proportional between the two months. If prices are proportional for the two months, then any acceptable price index between the two months should equal the proportionality factor. If $p^t = \lambda p^r$ for some positive factor of proportionality λ, then the matched model Fisher index $P_F(r,t)$ defined by (81) will equal λ. Another very important property of the measure of relative price similarity defined by (83) is that the Predicted Share measure *penalizes* a lack of product matching across the two months r and t. Thus if the matched prices for months r and t are equal but there are some products that are only available in one of the two periods under consideration, then $\Delta(p^r,p^t,q^r,q^t)$ will be greater than 0.

The 24 by 24 matrix of Predicted Share measures of relative price similarity for our laptop data, $\Delta(p^r,p^t,q^r,q^t)$, are listed in Table 8.

Table 8: Predicted Share Measures of Relative Price Similarity for 24 Months

r	Δ(r,1)	Δ(r,2)	Δ(r,3)	Δ(r,4)	Δ(r,5)	Δ(r,6)	Δ(r,7)	Δ(r,8)	Δ(r,9)	Δ(r,10)	Δ(r,11)	Δ(r,12)

[45] Note that there are 576 = 24x24 matched model bilateral Fisher (1922) indexes $P_F(r,t)$.

[46] See Diewert (2023) for the axiomatic properties of this measure.

1	0.0000	0.0103	0.0088	0.0170	0.0312	0.0492	0.0514	0.0506	0.0719	0.0643	0.0876	0.1009
2	0.0103	0.0000	0.0007	0.0092	0.0146	0.0257	0.0268	0.0325	0.0410	0.0448	0.0546	0.0554
3	0.0088	0.0007	0.0000	0.0046	0.0057	0.0119	0.0163	0.0168	0.0229	0.0236	0.0319	0.0340
4	0.0170	0.0092	0.0046	0.0000	0.0116	0.0149	0.0210	0.0196	0.0267	0.0268	0.0414	0.0459
5	0.0312	0.0146	0.0057	0.0116	0.0000	0.0005	0.0079	0.0030	0.0074	0.0071	0.0173	0.0215
6	0.0492	0.0257	0.0119	0.0149	0.0005	0.0000	0.0075	0.0027	0.0066	0.0059	0.0164	0.0207
7	0.0514	0.0268	0.0163	0.0210	0.0079	0.0075	0.0000	0.0045	0.0044	0.0057	0.0067	0.0075
8	0.0506	0.0325	0.0168	0.0196	0.0030	0.0027	0.0045	0.0000	0.0002	0.0013	0.0007	0.0012
9	0.0719	0.0410	0.0229	0.0267	0.0074	0.0066	0.0044	0.0002	0.0000	0.0009	0.0002	0.0005
10	0.0643	0.0448	0.0236	0.0268	0.0071	0.0059	0.0057	0.0013	0.0009	0.0000	0.0007	0.0039
11	0.0876	0.0546	0.0319	0.0414	0.0173	0.0164	0.0067	0.0007	0.0002	0.0007	0.0000	0.0002
12	0.1009	0.0554	0.0340	0.0459	0.0215	0.0207	0.0075	0.0012	0.0005	0.0039	0.0002	0.0000
13	0.1396	0.0832	0.0497	0.0500	0.0285	0.0276	0.0240	0.0160	0.0144	0.0174	0.0133	0.0132
14	0.1412	0.0935	0.0568	0.0545	0.0347	0.0335	0.0320	0.0220	0.0240	0.0230	0.0185	0.0181
15	0.1487	0.1013	0.0620	0.0566	0.0405	0.0397	0.0368	0.0266	0.0295	0.0289	0.0239	0.0237
16	0.1784	0.1158	0.0799	0.0767	0.0511	0.0483	0.0457	0.0345	0.0374	0.0367	0.0320	0.0342
17	0.2995	0.2356	0.1480	0.1292	0.0929	0.0865	0.0926	0.0758	0.0763	0.0775	0.0744	0.0860
18	0.3798	0.2993	0.1719	0.1442	0.0852	0.0768	0.0829	0.0667	0.0687	0.0665	0.0682	0.0821
19	0.3937	0.3428	0.2843	0.2545	0.1547	0.1549	0.1583	0.1381	0.1392	0.1409	0.1344	0.1429
20	0.6077	0.5073	0.3255	0.2534	0.1732	0.1664	0.1724	0.1525	0.1532	0.1543	0.1571	0.1850
21	0.5892	0.5008	0.2837	0.2233	0.1554	0.1473	0.1849	0.1659	0.1657	0.1677	0.1711	0.1964
22	0.8498	0.6705	0.4450	0.3799	0.2317	0.2216	0.2461	0.2465	0.2442	0.2463	0.2457	0.2896
23	0.8646	0.6571	0.4914	0.4568	0.3629	0.3730	0.4268	0.4061	0.4061	0.4102	0.4165	0.4628
24	1.0132	0.8555	0.6126	0.4593	0.3182	0.3071	0.3539	0.2608	0.2626	0.2612	0.2816	0.3249

r	Δ(r,13)	Δ(r,14)	Δ(r,15)	Δ(r,16)	Δ(r,17)	Δ(r,18)	Δ(r,19)	Δ(r,20)	Δ(r,21)	Δ(r,22)	Δ(r,23)	Δ(r,24)
1	0.1396	0.1412	0.1487	0.1784	0.2995	0.3798	0.3937	0.6077	0.5892	0.8498	0.8646	1.0132
2	0.0832	0.0935	0.1013	0.1158	0.2356	0.2993	0.3428	0.5073	0.5008	0.6705	0.6571	0.8555
3	0.0497	0.0568	0.0620	0.0799	0.1480	0.1719	0.2843	0.3255	0.2837	0.4450	0.4914	0.6126
4	0.0500	0.0545	0.0566	0.0767	0.1292	0.1442	0.2545	0.2534	0.2233	0.3799	0.4568	0.4593
5	0.0285	0.0347	0.0405	0.0511	0.0929	0.0852	0.1547	0.1732	0.1554	0.2317	0.3629	0.3182
6	0.0276	0.0335	0.0397	0.0483	0.0865	0.0768	0.1549	0.1664	0.1473	0.2216	0.3730	0.3071
7	0.0240	0.0320	0.0368	0.0457	0.0926	0.0829	0.1583	0.1724	0.1849	0.2461	0.4268	0.3539
8	0.0160	0.0220	0.0266	0.0345	0.0758	0.0667	0.1381	0.1525	0.1659	0.2465	0.4061	0.2608
9	0.0144	0.0240	0.0295	0.0374	0.0763	0.0687	0.1392	0.1532	0.1657	0.2442	0.4061	0.2626
10	0.0174	0.0230	0.0289	0.0367	0.0775	0.0665	0.1409	0.1543	0.1677	0.2463	0.4102	0.2612
11	0.0133	0.0185	0.0239	0.0320	0.0744	0.0682	0.1344	0.1571	0.1711	0.2457	0.4165	0.2816
12	0.0132	0.0181	0.0237	0.0342	0.0860	0.0821	0.1429	0.1850	0.1964	0.2896	0.4628	0.3249
13	0.0000	0.0035	0.0032	0.0057	0.0184	0.0230	0.0355	0.0380	0.0443	0.0842	0.1022	0.0937
14	0.0035	0.0000	0.0006	0.0031	0.0111	0.0170	0.0248	0.0254	0.0299	0.0656	0.0767	0.0762
15	0.0032	0.0006	0.0000	0.0003	0.0039	0.0072	0.0112	0.0101	0.0148	0.0486	0.0550	0.0567
16	0.0057	0.0031	0.0003	0.0000	0.0014	0.0035	0.0044	0.0045	0.0064	0.0407	0.0434	0.0458
17	0.0184	0.0111	0.0039	0.0014	0.0000	0.0020	0.0025	0.0025	0.0036	0.0391	0.0412	0.0438
18	0.0230	0.0170	0.0072	0.0035	0.0020	0.0000	0.0012	0.0031	0.0019	0.0359	0.0358	0.0396
19	0.0355	0.0248	0.0112	0.0044	0.0025	0.0012	0.0000	0.0006	0.0010	0.0349	0.0332	0.0367
20	0.0380	0.0254	0.0101	0.0045	0.0025	0.0031	0.0006	0.0000	0.0006	0.0341	0.0336	0.0370
21	0.0443	0.0299	0.0148	0.0064	0.0036	0.0019	0.0010	0.0006	0.0000	0.0330	0.0313	0.0356
22	0.0842	0.0656	0.0486	0.0407	0.0391	0.0359	0.0349	0.0341	0.0330	0.0000	0.0009	0.0043
23	0.1022	0.0767	0.0550	0.0434	0.0412	0.0358	0.0332	0.0336	0.0313	0.0009	0.0000	0.0013
24	0.0937	0.0762	0.0567	0.0458	0.0438	0.0396	0.0367	0.0370	0.0356	0.0043	0.0013	0.0000

Table 8 can be used to construct the relative price similarity linked Predicted Share Price index, P_S^t, for t = 1,…,24. We set $P_S^1 = 1$. When comparing the prices of month 2 to the prices of previous months, there is only one possible comparison in our window of data so that we must compare p^2 to p^1. We use the matched model Fisher index $P_F(p^1,p^2)$ defined by (83) to define the similarity linked month 2 index. Thus $P_S^2 \equiv P_F(p^1,p^2)$. Now look at the column in Table 8 that has the heading Δ(r,3). Look at the first 2 entries in this column. We have Δ(1,3) = 0.0088 and Δ(2,3) = 0.0007. Since Δ(2,3) is smaller than Δ(1,3), we link month

3 to month 2 using the matched model Fisher index $P_F(2,3)$. Thus $P_S^3 \equiv P_S^2\, P_F(2,3)$. Now look at the column in Table 8 that has the heading $\Delta(r,4)$. Look at the first 3 entries in this column. We have $\Delta(1,4) = 0.0170$, $\Delta(2,4) = 0.0092$ and $\Delta(3,4) = 0.0046$. Since $\Delta(3,4)$ is the smallest of these 3 measures, we link month 4 to month 3 using the matched model Fisher index $P_F(3,4)$. Thus $P_S^4 \equiv P_S^3\, P_F(3,4)$. This procedure can be continued until we look down the column that has the heading $\Delta(r,24)$. The smallest measure of relative price similarity in the first 23 rows of this column is the entry for row 23 which has measure 0.0013. Thus we link month 24 to month 23 using the matched model Fisher index $P_F(23,24)$ which leads to the following definition for $P_S^{24} \equiv P_S^{23}\, P_F(23,24)$.[47]

The relative price Predicted Share Similarity Linked indexes P_S^t are listed in Table 9 below. We also list the chained maximum overlap Laspeyres, Paasche and Fisher indexes, P_{LCH}^t, P_{PCH}^t and P_{FCH}^t in Table 9. Finally, for comparison purposes, Table 9 lists our "best" hedonic price index from the previous sections, the Weighted Adjacent Period Time Product Dummy Index, P_{WATPD}^t, as well as the average laptop price index P_A^t and the Unit Value price index P_{UV}^t. See Chart 5 for plots of the indexes listed in Table 9.

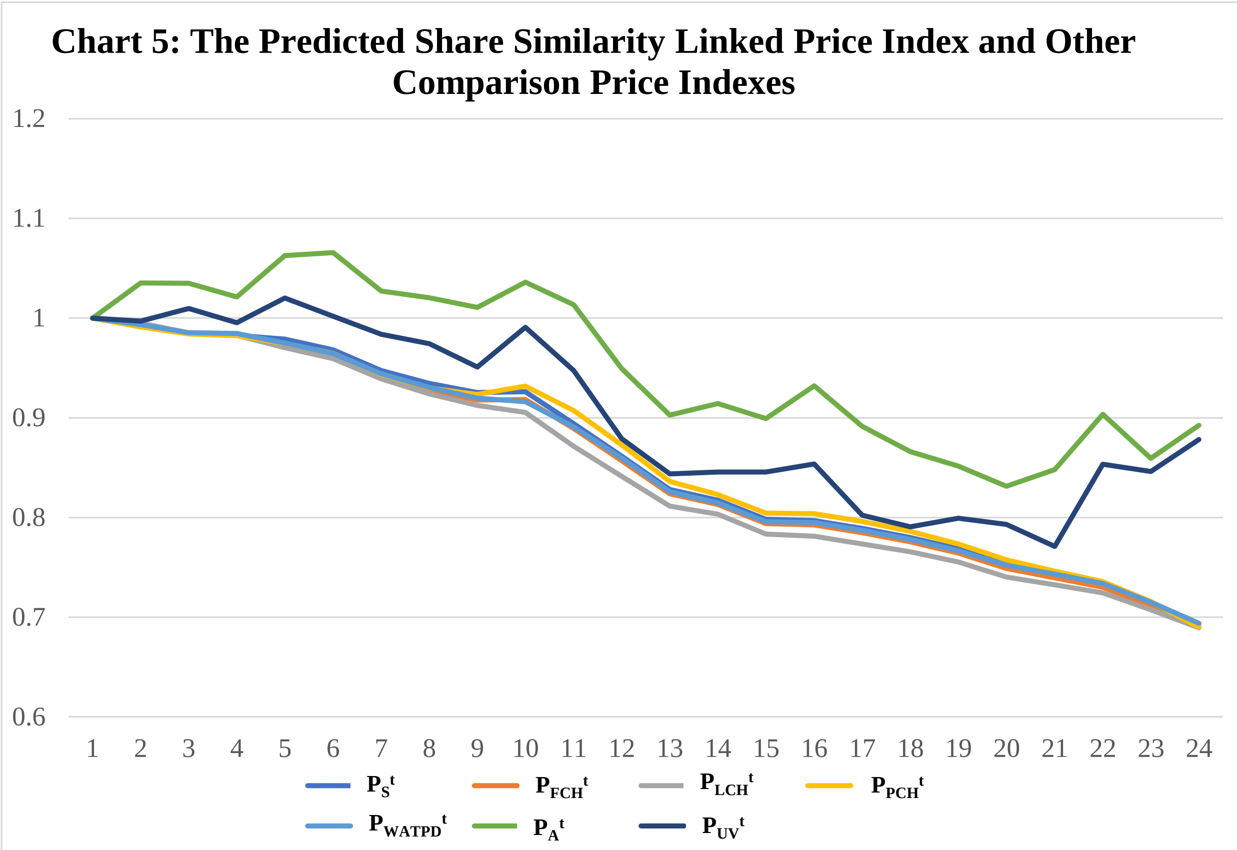
Table 9: The Predicted Share Similarity Linked Price Index and Other Comparison Price Indexes

Month t	P_S^t	P_{FCH}^t	P_{LCH}^t	P_{PCH}^t	P_{WATPD}^t	P_A^t	P_{UV}^t
1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
2	0.99299	0.99299	0.99499	0.99099	0.99358	1.03525	0.99703
3	0.98452	0.98452	0.98509	0.98395	0.98526	1.03503	1.00972
4	0.98264	0.98264	0.98278	0.98250	0.98456	1.02127	0.99538
5	0.97885	0.97249	0.97035	0.97463	0.97476	1.06279	1.02001
6	0.96824	0.96195	0.95918	0.96472	0.96444	1.06571	1.00173
7	0.94753	0.94137	0.93918	0.94357	0.94422	1.02721	0.98386
8	0.93457	0.92689	0.92393	0.92986	0.93034	1.02049	0.97422
9	0.92543	0.91782	0.91232	0.92335	0.91971	1.01082	0.95086
10	0.92600	0.91838	0.90527	0.93168	0.91611	1.03594	0.99085
11	0.89409	0.88924	0.87157	0.90727	0.89088	1.01327	0.94737
12	0.86152	0.85685	0.84120	0.87279	0.85948	0.94941	0.87888
13	0.82820	0.82371	0.81147	0.83614	0.82589	0.90281	0.84358
14	0.81744	0.81301	0.80318	0.82295	0.81473	0.91423	0.84563
15	0.79826	0.79394	0.78350	0.80451	0.79577	0.89907	0.84560
16	0.79677	0.79245	0.78126	0.80379	0.79492	0.93198	0.85366
17	0.78900	0.78472	0.77346	0.79615	0.78726	0.89127	0.80235
18	0.77988	0.77565	0.76547	0.78596	0.77805	0.86620	0.79067
19	0.76847	0.76431	0.75526	0.77346	0.76665	0.85147	0.79919
20	0.75289	0.74881	0.74032	0.75740	0.75214	0.83124	0.79319
21	0.74342	0.73939	0.73261	0.74623	0.74318	0.84793	0.77090
22	0.73398	0.73000	0.72431	0.73573	0.73369	0.90356	0.85345
23	0.71536	0.71148	0.70730	0.71569	0.71498	0.85940	0.84609
24	0.69347	0.68971	0.68948	0.68993	0.69385	0.89247	0.87814
Mean	0.85890	0.85468	0.84806	0.86139	0.85685	0.95287	0.90302

It can be seen that the relative price similarity linked indexes P_S^t, the Fisher chained maximum overlap indexes P_{FCH}^t and the Adjacent Period Weighted Time Product Dummy price indexes P_{WATPD}^t are all extremely close to each other for our laptop data set. These three indexes seem to be "best" for our particular

[47] The entire set of bilateral matched model Fisher links is as follows: 2-1; 3-2; 4-3; 5-3*; 6-5; 7-6; 8-6*; 9-8; 10-9; 11-9*; 12-11; 13-12; 14-13; 15-14; 16-15; 17-16; 18-17; 19-18; 20-19; 21-20; 22-21; 23-22; 24-23. Note that there are only 3 bilateral links that are not chain links. Thus the similarity linked indexes for our data are likely to be close to the corresponding chained maximum overlap Fisher index

application. It can also be seen that the chained Laspeyres and Paasche indexes, P_{LCH}^t and P_{PCH}^t, are very close to our "best" indexes.



The chained Fisher indexes have the advantage that no complex hedonic regression methodology is required to implement these indexes. They are also relatively easy to explain to the public. However, in many applications where products go on sale or they are strongly seasonal products, chained Fisher indexes may be subject to some chain drift and so the use of the similarity linked indexes is recommended in this case. The disadvantages of the similarity linked indexes are that the programming required to produce these indexes is more complex and the indexes will be difficult to explain to the public.

The Adjacent Period Weighted Time Product Dummy indexes performed well in this application. But in other applications where the products are not close substitutes, this method can be biased because it basically assumes linear preferences for purchasers of the group of products in scope.[48] Also if there is price bouncing behavior, this method will be subject to possible chain drift.

8. Conclusion.

The following tentative conclusions emerge from our study of laptop prices in Japan:

[48] See Diewert and Fox (2022) on this point.

- If quantity or expenditure weights are available in addition to price information, then it is important to use these weights in the calculation of a weighted by economic importance price index.
- Hedonic regressions that use amounts of product characteristics as independent variables in the regressions are not recommended for two reasons: (i) it is expensive to collect information on characteristics and (ii) it is likely that some important price determining characteristics are not included in the list of characteristics.[49]
- The Adjacent Period Weighted Time Product Dummy index is a preferred index provided that: (i) prices and quantities do not fluctuate violently from period to period due to product sales or strong seasonality and (ii) the products in scope are thought to be close substitutes.
- The Predicted Share Similarity Linked index is also a preferred index that should be satisfactory even if there are product sales or strong seasonality or if the products in scope are not close substitutes. The disadvantages of this method are the complexity of the computations and the difficulty of explaining the method to the public.
- In our particular application, our two preferred indexes were virtually identical. The chained maximum overlap Fisher indexes were also extremely close to our two preferred indexes and the chained maximum overlap Laspeyres and Paasche indexes were very close to our preferred indexes. However, we do not expect these close approximations to occur in other applications.

Data Appendix

The data can be obtained on request by emailing one of the authors.

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[49] There is at least one important exception to this "rule". Property price indexes must use property characteristics (such as the land plot area, the floor space area of the structure on the property and the location of the property) in order to construct a property price index. The reason why the time product dummy approach and normal index number theory cannot be used in this context is the fact that a property with a structure *does not remain the same* from period to period due to structure ageing and renovation expenditures. For examples of the use of hedonic characteristics regressions in property markets, see Diewert and Shimizu (2015) (2016) (2022).

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Data Appendix:

OBS	TD	JAN	CLOCK	MEM	SIZE	PIX	HDMI	BRAND	Q	P
1	202001	34	1.1	4096	14	20.74	1	7	146	37854.6
2	202001	45	1.1	4096	13.3	20.74	1	7	504	33885
3	202001	46	2.5	4096	15.6	10.49	1	7	199	64337.8
4	202001	47	1.1	4096	13.3	10.49	1	7	106	34937.5
5	202001	48	2.3	4096	15.6	20.74	1	7	151	57197.5
6	202001	49	1.6	8192	15.6	20.74	1	7	2934	92876.4
7	202001	50	1.1	4096	11.6	10.49	1	7	186	28778.6
8	202001	52	1.6	4096	15.6	10.49	1	7	646	60690.8
9	202001	55	1.8	8192	14	20.74	1	4	143	102756.2
10	202001	56	2.6	16384	17.3	20.74	1	4	185	172429.7
11	202001	57	2.6	16384	15.6	20.74	1	4	206	135232.5
12	202001	73	2.2	4096	13.3	20.74	0	5	265	61248.6
13	202001	74	3.4	4096	13.3	20.74	0	5	118	93499.8
14	202001	76	1.6	8192	13.3	20.74	0	5	172	117816.1
15	202001	78	1.1	4096	15.6	20.74	1	5	119	37027.9
16	202001	81	1.2	8192	12	33.18	0	10	296	103142.6
17	202001	82	2.3	8192	13.3	40.96	0	10	162	102254.2
18	202001	83	2.3	8192	13.3	40.96	0	10	134	103622.2
19	202001	84	2.3	8192	13.3	40.96	0	10	467	113790.3
20	202001	85	2.3	8192	13.3	40.96	0	10	625	113155.7
21	202001	86	3.1	8192	13.3	40.96	0	10	121	126437
22	202001	87	3.1	8192	13.3	40.96	0	10	136	124704
23	202001	88	1.8	8192	13.3	12.96	0	10	298	84315.3
24	202001	89	1.8	8192	15.6	20.74	1	8	258	124722.5
25	202001	90	2.2	4096	15.6	20.74	1	8	113	77424.8
26	202001	91	2.2	4096	15.6	20.74	1	8	4522	101927.3
27	202001	92	1.8	8192	13.3	20.74	1	8	172	173206.1
28	202001	93	2.2	4096	13.3	20.74	1	8	1387	138775.9
29	202001	95	1.8	4096	15.6	10.49	1	11	139	90529
30	202001	96	1.8	4096	14	10.49	1	11	271	41910.4
31	202001	97	1.8	4096	14	10.49	1	11	928	50688.2
32	202001	98	1.6	4096	13.3	20.74	1	11	431	114307.4
33	202001	99	1.8	8192	13.3	20.74	1	11	556	142937.9

34	202001	100	1.6	4096	13.3	20.74	1	11	353	112935.5
35	202001	101	1.8	8192	15.6	20.74	1	11	179	134644.8
36	202001	102	1.8	8192	15.6	20.74	1	11	504	146422
37	202001	103	1.8	8192	15.6	20.74	1	11	144	129973.8
38	202001	104	1.8	8192	15.6	20.74	1	11	5241	120551.1
39	202001	105	1.8	8192	15.6	20.74	1	11	171	125936.8
40	202001	106	1.8	8192	15.6	20.74	1	11	213	126728.8
41	202001	107	2	4096	15.6	10.49	1	11	372	83260
42	202001	108	1.8	4096	15.6	10.49	1	11	402	83733.4
43	202001	109	1.8	4096	15.6	10.49	1	11	176	88390
44	202001	110	2.4	4096	15.6	20.74	1	11	438	93542.6
45	202001	111	1.5	4096	13.3	20.74	1	11	1634	138834.3
46	202001	112	2.6	8192	17.3	20.74	1	11	3242	186768.6
47	202001	113	2.1	4096	17.3	20.74	1	11	1078	147961.5
48	202001	114	2.6	8192	15.6	20.74	1	11	679	176199.7
49	202001	115	2.6	8192	15.6	20.74	1	11	737	175729.8
50	202001	116	2.6	8192	15.6	20.74	1	11	1905	179260.5
51	202001	117	1.8	8192	13.3	20.74	1	11	1721	174188.4
52	202001	118	1.6	8192	13.3	20.74	1	11	122	159070
53	202001	119	1.8	8192	13.3	20.74	1	11	201	187329
54	202001	120	1.8	4096	15.6	10.49	1	11	3979	120757.9
55	202001	122	2.6	8192	15.6	82.94	1	11	665	220302.7
56	202001	123	1.8	8192	15.6	20.74	1	11	3314	153197.9
57	202001	125	1.8	8192	15.6	20.74	1	11	3898	147559.7
58	202001	126	1.6	8192	12	55.3	1	3	227	219063.6
59	202001	127	1.6	8192	13.3	40.96	0	10	150	93264.7
60	202001	128	1.6	8192	13.3	40.96	0	10	304	91020.6
61	202001	129	1.6	8192	13.3	40.96	0	10	153	116103.7
62	202001	130	2.2	16384	15.4	51.84	0	10	116	183156.6
63	202001	132	2.2	16384	15.4	51.84	0	10	138	185393.6
64	202001	134	2.3	8192	13.3	40.96	0	10	392	143063.7
65	202001	136	2.3	8192	13.3	40.96	0	10	523	136072
66	202001	137	2.3	8192	13.3	40.96	0	10	178	157509.7
67	202001	139	2.4	8192	13.3	40.96	0	10	560	190926.1
68	202001	141	2.4	8192	13.3	40.96	0	10	392	214097.6

69	202001	143	2.4	8192	13.3	40.96	0	10	271	192619
70	202001	145	2.4	8192	13.3	40.96	0	10	257	213181.9
71	202001	146	1.4	8192	13.3	40.96	0	10	1502	133568.1
72	202001	147	1.4	8192	13.3	40.96	0	10	1786	153612.2
73	202001	148	1.4	8192	13.3	40.96	0	10	862	134633.2
74	202001	149	1.4	8192	13.3	40.96	0	10	975	153971
75	202001	150	1.6	8192	13.3	40.96	0	10	1901	114423.9
76	202001	151	1.6	8192	13.3	40.96	0	10	1895	133963
77	202001	152	1.6	8192	13.3	40.96	0	10	1735	114898.1
78	202001	153	1.6	8192	13.3	40.96	0	10	1559	134151.2
79	202001	154	1.6	8192	13.3	40.96	0	10	1202	114280.5
80	202001	155	1.6	8192	13.3	40.96	0	10	1433	133866.5
81	202001	162	2.6	16384	16	58.98	0	10	808	241738.9
82	202001	163	2.3	16384	16	58.98	0	10	759	281954.2
83	202001	164	2.6	16384	16	58.98	0	10	489	243440.3
84	202001	165	2.3	16384	16	58.98	0	10	351	283405.2
85	202001	175	1.6	8192	15.6	20.74	1	5	644	73458.8
86	202001	176	2.7	8192	13.3	20.74	1	12	102	130017.5
87	202001	177	2.7	8192	13.3	20.74	1	12	138	118487.1
88	202001	178	2.4	4096	13.3	20.74	1	12	118	81884.8
89	202001	179	1.2	8192	12.5	20.74	1	12	157	97460.3
90	202001	180	1.5	4096	12.5	20.74	1	12	107	67394.2
91	202001	181	1.5	4096	12.5	20.74	1	12	103	61915.4
92	202001	182	1.1	4096	15.6	10.49	1	12	473	76547.5
93	202001	183	1.1	4096	15.6	10.49	1	12	142	70326.9
94	202001	184	1.8	8192	15.6	20.74	1	12	176	129998.6
95	202001	185	1.6	8192	13.3	20.74	1	12	441	117067.6
96	202001	186	1.6	8192	13.3	20.74	1	12	154	117433.1
97	202001	187	2.2	4096	15.6	10.49	1	12	239	103793.3
98	202001	188	1.3	8192	12.5	20.74	1	12	1082	120274.8
99	202001	189	1.3	8192	12.5	20.74	1	12	1514	121785.5
100	202001	190	1.3	8192	12.5	20.74	1	12	337	128932.2
101	202001	191	1.5	4096	12.5	20.74	1	12	322	90417
102	202001	192	1.5	4096	12.5	20.74	1	12	721	86836.8
103	202001	193	1.5	4096	12.5	20.74	1	12	162	88663.9

104	202001	194	2.2	8192	15.6	20.74	1	12	905	163502.7
105	202001	195	2.2	8192	15.6	20.74	1	12	2674	157905.5
106	202001	196	2.2	8192	15.6	20.74	1	12	1048	170829.2
107	202001	199	2.3	4096	15.6	20.74	1	12	3861	134206.8
108	202001	203	1.8	8192	13.3	20.74	1	12	401	175526.5
109	202001	204	1.8	8192	13.3	20.74	1	12	121	178493.3
110	202001	205	1.8	8192	13.3	20.74	1	12	142	179871.3
111	202001	206	1.6	8192	13.3	20.74	1	12	504	158488.3
112	202001	207	1.6	8192	13.3	20.74	1	12	201	156884.4
113	202001	208	1.6	8192	13.3	20.74	1	12	417	156142.1
114	202001	209	1.8	8192	13.3	20.74	1	12	218	178249.2
115	202001	210	1.8	8192	14	20.74	1	12	745	135837.9
116	202001	211	1.8	8192	14	20.74	1	12	283	137186.6
117	202001	212	2.1	4096	14	20.74	1	12	1544	124897.3
118	202001	215	2.3	8192	15.6	20.74	1	12	1276	126152.2
119	202001	216	2.3	8192	15.6	20.74	1	12	573	125065.1
120	202001	245	1.6	8192	13.3	20.74	1	9	185	108507.2
121	202001	246	2.2	4096	13.3	20.74	1	9	114	86477.1
122	202001	247	2.3	8192	15.6	20.74	0	9	1283	93572.7
123	202001	248	1.8	4096	15.6	10.49	1	9	129	57819.3
124	202001	249	1.8	4096	15.6	10.49	1	9	112	64161.6
125	202001	250	2.3	4096	15.6	10.49	1	9	1027	75547.3
126	202001	251	2.6	8192	15.6	20.74	1	9	495	123457.5
127	202001	253	2.3	8192	15.6	20.74	1	9	2090	87780.5
128	202001	254	1.1	4096	11.6	10.49	1	9	1996	46918
129	202001	255	1.1	4096	11.6	10.49	1	9	985	59828.6
130	202001	256	1.8	8192	17.3	20.74	1	9	272	117319.7
131	202001	257	1.8	8192	15.6	20.74	1	9	664	102787.4
132	202001	258	2.1	8192	13.3	20.74	1	9	480	94245.3
133	202001	261	2.1	8192	13.3	20.74	1	9	208	98403.4
134	202001	262	2.1	8192	15.6	20.74	1	9	1082	48213.5
135	202001	263	2.1	8192	15.6	20.74	1	9	173	57948.8
136	202001	264	2.1	8192	15.6	20.74	1	9	290	58341
137	202001	303	2.4	4096	13.3	20.74	1	9	417	70368.5
138	202001	321	2.1	8192	14	20.74	1	1	305	96106.4

139	202001	352	1.8	8192	16.1	20.74	1	8	161	191086
140	202001	359	1.8	16384	15.6	20.74	1	8	1208	148008.6
141	202001	360	1.8	16384	15.6	20.74	1	8	291	155100.1
142	202001	362	2.2	4096	15.6	20.74	1	8	741	110060.3
143	202001	363	2.2	4096	15.6	20.74	1	8	2137	119229
144	202001	364	1.6	8192	15.6	20.74	1	8	151	178425.3
145	202001	365	1.8	4096	13.3	20.74	1	8	382	136549.5
146	202001	366	1.8	4096	13.3	20.74	1	8	513	126990.9
147	202002	44	1.6	4096	15.6	10.49	1	7	111	31636
148	202002	45	1.1	4096	13.3	20.74	1	7	146	35999.8
149	202002	49	1.6	8192	15.6	20.74	1	7	1138	98385.7
150	202002	50	1.1	4096	11.6	10.49	1	7	167	28479.8
151	202002	52	1.6	4096	15.6	10.49	1	7	1851	54415.6
152	202002	54	1.8	8192	14	20.74	1	4	105	103256.9
153	202002	55	1.8	8192	14	20.74	1	4	110	99169
154	202002	56	2.6	16384	17.3	20.74	1	4	158	166910.9
155	202002	57	2.6	16384	15.6	20.74	1	4	181	132554.4
156	202002	58	1.1	16384	14	20.74	0	4	117	159487.2
157	202002	73	2.2	4096	13.3	20.74	0	5	229	61310.5
158	202002	74	3.4	4096	13.3	20.74	0	5	101	91144.2
159	202002	76	1.6	8192	13.3	20.74	0	5	135	118252.6
160	202002	81	1.2	8192	12	33.18	0	10	325	99870.4
161	202002	82	2.3	8192	13.3	40.96	0	10	152	99266.2
162	202002	84	2.3	8192	13.3	40.96	0	10	195	110905.1
163	202002	85	2.3	8192	13.3	40.96	0	10	852	109381.1
164	202002	86	3.1	8192	13.3	40.96	0	10	114	120824.4
165	202002	87	3.1	8192	13.3	40.96	0	10	164	124694
166	202002	89	1.8	8192	15.6	20.74	1	8	103	114634.9
167	202002	91	2.2	4096	15.6	20.74	1	8	208	103755.2
168	202002	93	2.2	4096	13.3	20.74	1	8	985	130825.3
169	202002	97	1.8	4096	14	10.49	1	11	493	50928.2
170	202002	98	1.6	4096	13.3	20.74	1	11	223	120089.2
171	202002	99	1.8	8192	13.3	20.74	1	11	441	141004.9
172	202002	100	1.6	4096	13.3	20.74	1	11	193	110060.9
173	202002	102	1.8	8192	15.6	20.74	1	11	137	145373.5

174	202002	108	1.8	4096	15.6	10.49	1	11	106	86013.2
175	202002	111	1.5	4096	13.3	20.74	1	11	1461	137940.9
176	202002	112	2.6	8192	17.3	20.74	1	11	2185	184992.9
177	202002	113	2.1	4096	17.3	20.74	1	11	308	145626.8
178	202002	114	2.6	8192	15.6	20.74	1	11	414	181973.9
179	202002	115	2.6	8192	15.6	20.74	1	11	488	181395.5
180	202002	116	2.6	8192	15.6	20.74	1	11	1059	182054.5
181	202002	117	1.8	8192	13.3	20.74	1	11	1301	173929.8
182	202002	118	1.6	8192	13.3	20.74	1	11	144	154106
183	202002	119	1.8	8192	13.3	20.74	1	11	130	183871.2
184	202002	120	1.8	4096	15.6	10.49	1	11	2749	119226.9
185	202002	121	1.8	4096	15.6	10.49	1	11	3278	109767.7
186	202002	122	2.6	8192	15.6	82.94	1	11	371	218149.1
187	202002	123	1.8	8192	15.6	20.74	1	11	906	150403.3
188	202002	124	1.8	8192	15.6	20.74	1	11	2399	148220.2
189	202002	125	1.8	8192	15.6	20.74	1	11	1845	150165.6
190	202002	126	1.6	8192	12	55.3	1	3	148	186578.4
191	202002	127	1.6	8192	13.3	40.96	0	10	142	90638.3
192	202002	130	2.2	16384	15.4	51.84	0	10	206	173964.6
193	202002	132	2.2	16384	15.4	51.84	0	10	202	171772.4
194	202002	133	2.6	16384	15.4	51.84	0	10	126	189397
195	202002	134	2.3	8192	13.3	40.96	0	10	192	137550.4
196	202002	135	2.3	8192	13.3	40.96	0	10	1058	145217.7
197	202002	136	2.3	8192	13.3	40.96	0	10	186	133233.1
198	202002	139	2.4	8192	13.3	40.96	0	10	541	193003.2
199	202002	140	2.6	16384	15.4	51.84	0	10	100	195662.4
200	202002	141	2.4	8192	13.3	40.96	0	10	391	214640.7
201	202002	143	2.4	8192	13.3	40.96	0	10	264	193560.6
202	202002	145	2.4	8192	13.3	40.96	0	10	253	211989.7
203	202002	146	1.4	8192	13.3	40.96	0	10	1611	134716.9
204	202002	147	1.4	8192	13.3	40.96	0	10	1659	153390.5
205	202002	148	1.4	8192	13.3	40.96	0	10	768	135462.4
206	202002	149	1.4	8192	13.3	40.96	0	10	1029	153814.3
207	202002	150	1.6	8192	13.3	40.96	0	10	2047	115454.3
208	202002	151	1.6	8192	13.3	40.96	0	10	1849	134877

209	202002	152	1.6	8192	13.3	40.96	0	10	982	118123.4
210	202002	153	1.6	8192	13.3	40.96	0	10	1371	134829.1
211	202002	154	1.6	8192	13.3	40.96	0	10	1098	116019.9
212	202002	155	1.6	8192	13.3	40.96	0	10	1273	133786.8
213	202002	162	2.6	16384	16	58.98	0	10	669	237812.4
214	202002	163	2.3	16384	16	58.98	0	10	718	281582.8
215	202002	164	2.6	16384	16	58.98	0	10	522	243306
216	202002	165	2.3	16384	16	58.98	0	10	400	282509.9
217	202002	175	1.6	8192	15.6	20.74	1	5	156	76182.5
218	202002	182	1.1	4096	15.6	10.49	1	12	117	73263.2
219	202002	185	1.6	8192	13.3	20.74	1	12	180	112169.2
220	202002	188	1.3	8192	12.5	20.74	1	12	994	118370.9
221	202002	189	1.3	8192	12.5	20.74	1	12	1209	116854
222	202002	190	1.3	8192	12.5	20.74	1	12	385	122156.5
223	202002	191	1.5	4096	12.5	20.74	1	12	316	85538.8
224	202002	192	1.5	4096	12.5	20.74	1	12	334	87203.4
225	202002	193	1.5	4096	12.5	20.74	1	12	148	85688.3
226	202002	194	2.2	8192	15.6	20.74	1	12	191	161351.8
227	202002	195	2.2	8192	15.6	20.74	1	12	606	156905.1
228	202002	196	2.2	8192	15.6	20.74	1	12	478	173044.3
229	202002	197	2.3	4096	15.6	20.74	1	12	2001	124130.2
230	202002	198	2.3	4096	15.6	20.74	1	12	1186	137645.5
231	202002	199	2.3	4096	15.6	20.74	1	12	485	131335.3
232	202002	201	1.8	4096	15.6	10.49	1	12	3136	104482.6
233	202002	202	1.8	4096	15.6	10.49	1	12	2876	100514.5
234	202002	203	1.8	8192	13.3	20.74	1	12	349	178449.4
235	202002	204	1.8	8192	13.3	20.74	1	12	100	178394.3
236	202002	206	1.6	8192	13.3	20.74	1	12	734	149217.2
237	202002	207	1.6	8192	13.3	20.74	1	12	439	150982.2
238	202002	208	1.6	8192	13.3	20.74	1	12	357	155761.2
239	202002	209	1.8	8192	13.3	20.74	1	12	161	180068.5
240	202002	210	1.8	8192	14	20.74	1	12	658	138060
241	202002	211	1.8	8192	14	20.74	1	12	179	143085.2
242	202002	212	2.1	4096	14	20.74	1	12	1934	122766.2
243	202002	216	2.3	8192	15.6	20.74	1	12	3411	120917.3

244	202002	217	2.3	8192	15.6	20.74	1	12	498	115408.4
245	202002	218	1.2	8192	12.5	20.74	1	12	304	136547.5
246	202002	221	1	8192	12.5	20.74	1	12	278	132297.8
247	202002	224	1.5	4096	12.5	20.74	1	12	172	100582.2
248	202002	245	1.6	8192	13.3	20.74	1	9	289	101648.4
249	202002	246	2.2	4096	13.3	20.74	1	9	127	80065.9
250	202002	247	2.3	8192	15.6	20.74	0	9	1767	92965.5
251	202002	248	1.8	4096	15.6	10.49	1	9	155	58651.4
252	202002	249	1.8	4096	15.6	10.49	1	9	105	63880.9
253	202002	250	2.3	4096	15.6	10.49	1	9	327	74515.3
254	202002	251	2.6	8192	15.6	20.74	1	9	419	124102.1
255	202002	252	2.6	16384	15.6	20.74	1	9	159	141361.4
256	202002	253	2.3	8192	15.6	20.74	1	9	1753	86463.8
257	202002	254	1.1	4096	11.6	10.49	1	9	914	48768.9
258	202002	255	1.1	4096	11.6	10.49	1	9	697	57071.4
259	202002	256	1.8	8192	17.3	20.74	1	9	312	108755.1
260	202002	257	1.8	8192	15.6	20.74	1	9	990	102147.1
261	202002	258	2.1	8192	13.3	20.74	1	9	502	96043.7
262	202002	259	1.6	8192	13.3	20.74	1	9	186	94288.3
263	202002	261	2.1	8192	13.3	20.74	1	9	162	99191.1
264	202002	262	2.1	8192	15.6	20.74	1	9	207	49514.3
265	202002	263	2.1	8192	15.6	20.74	1	9	134	60341.4
266	202002	264	2.1	8192	15.6	20.74	1	9	145	58330.7
267	202002	265	2.1	8192	15.6	20.74	1	9	113	53422.8
268	202002	267	2.6	8192	15.6	20.74	1	9	543	77551.3
269	202002	303	2.4	4096	13.3	20.74	1	9	174	69995.6
270	202002	321	2.1	8192	14	20.74	1	1	353	93869.8
271	202002	354	1.8	8192	15.6	20.74	1	8	1082	126899.4
272	202002	355	1.6	8192	13.3	20.74	1	8	226	177268.2
273	202002	356	1.6	8192	13.3	20.74	1	8	496	161432
274	202002	359	1.8	16384	15.6	20.74	1	8	760	143491.5
275	202002	361	1.8	4096	15.6	20.74	1	8	4686	118740.7
276	202002	362	2.2	4096	15.6	20.74	1	8	215	106397.2
277	202002	363	2.2	4096	15.6	20.74	1	8	704	116931.3
278	202002	364	1.6	8192	15.6	20.74	1	8	113	178587.4

279	202002	365	1.8	4096	13.3	20.74	1	8	442	135582.2
280	202002	366	1.8	4096	13.3	20.74	1	8	274	124406.2
281	202003	44	1.6	4096	15.6	10.49	1	7	288	30317.1
282	202003	45	1.1	4096	13.3	20.74	1	7	306	35015.4
283	202003	48	2.3	4096	15.6	20.74	1	7	238	57584.1
284	202003	49	1.6	8192	15.6	20.74	1	7	802	95063
285	202003	52	1.6	4096	15.6	10.49	1	7	250	51614.3
286	202003	54	1.8	8192	14	20.74	1	4	153	101476.9
287	202003	55	1.8	8192	14	20.74	1	4	131	97622.1
288	202003	56	2.6	16384	17.3	20.74	1	4	203	166340.6
289	202003	57	2.6	16384	15.6	20.74	1	4	221	132639.5
290	202003	58	1.1	16384	14	20.74	0	4	124	159579.7
291	202003	73	2.2	4096	13.3	20.74	0	5	365	62504
292	202003	74	3.4	4096	13.3	20.74	0	5	147	95190.8
293	202003	75	1.6	8192	13.3	20.74	0	5	358	95753.5
294	202003	76	1.6	8192	13.3	20.74	0	5	302	114123.4
295	202003	78	1.1	4096	15.6	20.74	1	5	134	40050.1
296	202003	81	1.2	8192	12	33.18	0	10	192	97569.5
297	202003	82	2.3	8192	13.3	40.96	0	10	201	97953.1
298	202003	85	2.3	8192	13.3	40.96	0	10	104	115823.8
299	202003	88	1.8	8192	13.3	12.96	0	10	135	84490
300	202003	90	2.2	4096	15.6	20.74	1	8	108	78076.2
301	202003	91	2.2	4096	15.6	20.74	1	8	136	98931
302	202003	92	1.8	8192	13.3	20.74	1	8	122	165930.3
303	202003	93	2.2	4096	13.3	20.74	1	8	2004	123299.3
304	202003	96	1.8	4096	14	10.49	1	11	137	44072.3
305	202003	97	1.8	4096	14	10.49	1	11	650	52784.5
306	202003	98	1.6	4096	13.3	20.74	1	11	407	106894.5
307	202003	99	1.8	8192	13.3	20.74	1	11	427	140401
308	202003	100	1.6	4096	13.3	20.74	1	11	211	105874.7
309	202003	102	1.8	8192	15.6	20.74	1	11	125	135760.2
310	202003	111	1.5	4096	13.3	20.74	1	11	3793	133700.8
311	202003	112	2.6	8192	17.3	20.74	1	11	2196	179691.8
312	202003	113	2.1	4096	17.3	20.74	1	11	305	152930.4
313	202003	114	2.6	8192	15.6	20.74	1	11	512	175116.9

314	202003	115	2.6	8192	15.6	20.74	1	11	482	176211.5
315	202003	116	2.6	8192	15.6	20.74	1	11	1110	182324.6
316	202003	117	1.8	8192	13.3	20.74	1	11	2693	173490.5
317	202003	118	1.6	8192	13.3	20.74	1	11	276	157831.3
318	202003	119	1.8	8192	13.3	20.74	1	11	116	183501.2
319	202003	120	1.8	4096	15.6	10.49	1	11	3031	115807.8
320	202003	121	1.8	4096	15.6	10.49	1	11	3773	105708.3
321	202003	122	2.6	8192	15.6	82.94	1	11	250	222146.8
322	202003	123	1.8	8192	15.6	20.74	1	11	636	151384.2
323	202003	124	1.8	8192	15.6	20.74	1	11	1706	150546.2
324	202003	125	1.8	8192	15.6	20.74	1	11	950	148283.3
325	202003	126	1.6	8192	12	55.3	1	3	115	210168
326	202003	127	1.6	8192	13.3	40.96	0	10	203	98788.5
327	202003	129	1.6	8192	13.3	40.96	0	10	108	114316.1
328	202003	130	2.2	16384	15.4	51.84	0	10	107	171622.2
329	202003	134	2.3	8192	13.3	40.96	0	10	102	140246.8
330	202003	138	1.2	8192	12	33.18	0	10	161	98946.7
331	202003	139	2.4	8192	13.3	40.96	0	10	991	191441.3
332	202003	140	2.6	16384	15.4	51.84	0	10	135	191569.4
333	202003	141	2.4	8192	13.3	40.96	0	10	624	214802.2
334	202003	142	2.6	16384	15.4	51.84	0	10	160	200969.4
335	202003	143	2.4	8192	13.3	40.96	0	10	496	193217.7
336	202003	145	2.4	8192	13.3	40.96	0	10	480	214361.8
337	202003	146	1.4	8192	13.3	40.96	0	10	1441	135188.2
338	202003	147	1.4	8192	13.3	40.96	0	10	1807	154257.2
339	202003	148	1.4	8192	13.3	40.96	0	10	1171	134538.3
340	202003	149	1.4	8192	13.3	40.96	0	10	1160	153587.5
341	202003	150	1.6	8192	13.3	40.96	0	10	1332	107792
342	202003	151	1.6	8192	13.3	40.96	0	10	788	128151.1
343	202003	152	1.6	8192	13.3	40.96	0	10	545	105748.2
344	202003	153	1.6	8192	13.3	40.96	0	10	509	128496
345	202003	154	1.6	8192	13.3	40.96	0	10	1004	105161
346	202003	155	1.6	8192	13.3	40.96	0	10	863	125879.8
347	202003	156	1.1	8192	13.3	40.96	0	10	1263	132723.1
348	202003	157	1.1	8192	13.3	40.96	0	10	1047	132702.6

349	202003	158	1.1	8192	13.3	40.96	0	10	534	133333.9
350	202003	159	1.1	8192	13.3	40.96	0	10	896	103022.1
351	202003	160	1.1	8192	13.3	40.96	0	10	593	103929.8
352	202003	161	1.1	8192	13.3	40.96	0	10	753	103425.1
353	202003	162	2.6	16384	16	58.98	0	10	829	239325.8
354	202003	163	2.3	16384	16	58.98	0	10	811	280851.2
355	202003	164	2.6	16384	16	58.98	0	10	622	243407
356	202003	165	2.3	16384	16	58.98	0	10	436	282657.4
357	202003	179	1.2	8192	12.5	20.74	1	12	112	95701.7
358	202003	185	1.6	8192	13.3	20.74	1	12	194	113017.4
359	202003	188	1.3	8192	12.5	20.74	1	12	1832	116320.2
360	202003	189	1.3	8192	12.5	20.74	1	12	1485	115900.1
361	202003	190	1.3	8192	12.5	20.74	1	12	442	120019.9
362	202003	191	1.5	4096	12.5	20.74	1	12	319	83859.6
363	202003	192	1.5	4096	12.5	20.74	1	12	417	85834.2
364	202003	193	1.5	4096	12.5	20.74	1	12	126	82170.8
365	202003	194	2.2	8192	15.6	20.74	1	12	614	163453.9
366	202003	195	2.2	8192	15.6	20.74	1	12	1712	161608.3
367	202003	196	2.2	8192	15.6	20.74	1	12	503	165426.2
368	202003	197	2.3	4096	15.6	20.74	1	12	1536	121386.7
369	202003	198	2.3	4096	15.6	20.74	1	12	1749	133879.7
370	202003	199	2.3	4096	15.6	20.74	1	12	400	131667.7
371	202003	201	1.8	4096	15.6	10.49	1	12	3619	102348.4
372	202003	202	1.8	4096	15.6	10.49	1	12	3288	99446.8
373	202003	203	1.8	8192	13.3	20.74	1	12	807	178963.4
374	202003	204	1.8	8192	13.3	20.74	1	12	163	183825.7
375	202003	205	1.8	8192	13.3	20.74	1	12	197	183146.2
376	202003	206	1.6	8192	13.3	20.74	1	12	1279	151348.9
377	202003	207	1.6	8192	13.3	20.74	1	12	1369	150632.5
378	202003	208	1.6	8192	13.3	20.74	1	12	774	156518.5
379	202003	209	1.8	8192	13.3	20.74	1	12	487	173453.4
380	202003	210	1.8	8192	14	20.74	1	12	1353	139731.3
381	202003	211	1.8	8192	14	20.74	1	12	426	142015.8
382	202003	212	2.1	4096	14	20.74	1	12	3641	123986.1
383	202003	216	2.3	8192	15.6	20.74	1	12	3186	127414.8

384	202003	217	2.3	8192	15.6	20.74	1	12	1119	138370.5
385	202003	218	1.2	8192	12.5	20.74	1	12	909	136995.4
386	202003	219	1.2	8192	12.5	20.74	1	12	239	154088.4
387	202003	220	1.2	8192	12.5	20.74	1	12	138	153389
388	202003	221	1	8192	12.5	20.74	1	12	799	132446.9
389	202003	222	1	8192	12.5	20.74	1	12	145	134692.1
390	202003	223	1	8192	12.5	20.74	1	12	109	133656.7
391	202003	224	1.5	4096	12.5	20.74	1	12	388	100224.4
392	202003	245	1.6	8192	13.3	20.74	1	9	340	100048.3
393	202003	246	2.2	4096	13.3	20.74	1	9	113	75945.4
394	202003	247	2.3	8192	15.6	20.74	0	9	1968	93197.1
395	202003	248	1.8	4096	15.6	10.49	1	9	157	57599.2
396	202003	249	1.8	4096	15.6	10.49	1	9	213	63764.7
397	202003	250	2.3	4096	15.6	10.49	1	9	191	72589.9
398	202003	251	2.6	8192	15.6	20.74	1	9	732	124953.8
399	202003	252	2.6	16384	15.6	20.74	1	9	273	151631.6
400	202003	253	2.3	8192	15.6	20.74	1	9	1617	87864.5
401	202003	254	1.1	4096	11.6	10.49	1	9	1330	48185.2
402	202003	255	1.1	4096	11.6	10.49	1	9	552	53637.5
403	202003	256	1.8	8192	17.3	20.74	1	9	180	110163.6
404	202003	257	1.8	8192	15.6	20.74	1	9	1402	102147.7
405	202003	258	2.1	8192	13.3	20.74	1	9	674	96699.4
406	202003	259	1.6	8192	13.3	20.74	1	9	412	93199.1
407	202003	260	1.6	8192	13.3	40.96	0	9	294	129626.3
408	202003	261	2.1	8192	13.3	20.74	1	9	195	95741.1
409	202003	263	2.1	8192	15.6	20.74	1	9	188	58060.1
410	202003	264	2.1	8192	15.6	20.74	1	9	177	61294.3
411	202003	265	2.1	8192	15.6	20.74	1	9	149	58034.8
412	202003	267	2.6	8192	15.6	20.74	1	9	1260	77505.2
413	202003	268	2.1	8192	13.3	40.96	0	9	265	113453.6
414	202003	269	2.3	8192	13.3	40.96	0	9	282	121290
415	202003	303	2.4	4096	13.3	20.74	1	9	225	70389.3
416	202003	321	2.1	8192	14	20.74	1	1	328	93750.6
417	202003	352	1.8	8192	16.1	20.74	1	8	172	181366.5
418	202003	353	1.8	8192	16.1	20.74	1	8	100	182574.8

419	202003	354	1.8	8192	15.6	20.74	1	8	1488	125810.4
420	202003	355	1.6	8192	13.3	20.74	1	8	536	175074.2
421	202003	356	1.6	8192	13.3	20.74	1	8	929	161170.8
422	202003	359	1.8	16384	15.6	20.74	1	8	367	142662.7
423	202003	361	1.8	4096	15.6	20.74	1	8	3151	118660.3
424	202003	363	2.2	4096	15.6	20.74	1	8	307	116929.4
425	202003	364	1.6	8192	15.6	20.74	1	8	176	170167.4
426	202003	365	1.8	4096	13.3	20.74	1	8	1254	132943.3
427	202003	366	1.8	4096	13.3	20.74	1	8	748	122672.9
428	202004	34	1.1	4096	14	20.74	1	7	127	41553.5
429	202004	44	1.6	4096	15.6	10.49	1	7	407	27125.9
430	202004	45	1.1	4096	13.3	20.74	1	7	416	36454.9
431	202004	48	2.3	4096	15.6	20.74	1	7	524	58688.8
432	202004	49	1.6	8192	15.6	20.74	1	7	2050	98625.9
433	202004	51	1.1	4096	11.6	10.49	1	7	137	48191.2
434	202004	55	1.8	8192	14	20.74	1	4	113	92781.4
435	202004	56	2.6	16384	17.3	20.74	1	4	104	158641.1
436	202004	57	2.6	16384	15.6	20.74	1	4	272	131884.9
437	202004	58	1.1	16384	14	20.74	0	4	144	159236.2
438	202004	73	2.2	4096	13.3	20.74	0	5	185	56124.7
439	202004	74	3.4	4096	13.3	20.74	0	5	159	92065
440	202004	75	1.6	8192	13.3	20.74	0	5	162	92234.4
441	202004	76	1.6	8192	13.3	20.74	0	5	167	110118.3
442	202004	77	1.6	8192	15.6	20.74	1	5	117	75549.1
443	202004	78	1.1	4096	15.6	20.74	1	5	173	41676.5
444	202004	82	2.3	8192	13.3	40.96	0	10	103	95212.7
445	202004	93	2.2	4096	13.3	20.74	1	8	1939	119324
446	202004	94	2.2	4096	12.5	20.74	1	8	144	135544.1
447	202004	96	1.8	4096	14	10.49	1	11	174	44881.4
448	202004	97	1.8	4096	14	10.49	1	11	1165	52488.3
449	202004	98	1.6	4096	13.3	20.74	1	11	392	92384.9
450	202004	99	1.8	8192	13.3	20.74	1	11	173	140143.3
451	202004	100	1.6	4096	13.3	20.74	1	11	110	104258.1
452	202004	111	1.5	4096	13.3	20.74	1	11	3294	130938
453	202004	112	2.6	8192	17.3	20.74	1	11	2341	177066.8

454	202004	113	2.1	4096	17.3	20.74	1	11	374	155375.2
455	202004	114	2.6	8192	15.6	20.74	1	11	441	169155.8
456	202004	115	2.6	8192	15.6	20.74	1	11	489	173314.4
457	202004	116	2.6	8192	15.6	20.74	1	11	1076	177840.5
458	202004	118	1.6	8192	13.3	20.74	1	11	561	153875.8
459	202004	119	1.8	8192	13.3	20.74	1	11	356	182733.2
460	202004	120	1.8	4096	15.6	10.49	1	11	3413	121774.5
461	202004	122	2.6	8192	15.6	82.94	1	11	385	223793.7
462	202004	123	1.8	8192	15.6	20.74	1	11	4533	147401.6
463	202004	125	1.8	8192	15.6	20.74	1	11	2907	148197.9
464	202004	127	1.6	8192	13.3	40.96	0	10	102	86926.4
465	202004	131	2.6	16384	15.4	51.84	0	10	121	191178.2
466	202004	134	2.3	8192	13.3	40.96	0	10	111	140671.3
467	202004	138	1.2	8192	12	33.18	0	10	103	99425.3
468	202004	139	2.4	8192	13.3	40.96	0	10	550	190409.6
469	202004	140	2.6	16384	15.4	51.84	0	10	230	169160.9
470	202004	141	2.4	8192	13.3	40.96	0	10	397	213400.9
471	202004	142	2.6	16384	15.4	51.84	0	10	130	175069.7
472	202004	143	2.4	8192	13.3	40.96	0	10	363	192243.9
473	202004	144	2.3	16384	15.4	51.84	0	10	161	202186.9
474	202004	145	2.4	8192	13.3	40.96	0	10	361	214251.4
475	202004	146	1.4	8192	13.3	40.96	0	10	555	136393.1
476	202004	147	1.4	8192	13.3	40.96	0	10	403	154867.9
477	202004	148	1.4	8192	13.3	40.96	0	10	627	136507.2
478	202004	149	1.4	8192	13.3	40.96	0	10	546	155474.2
479	202004	150	1.6	8192	13.3	40.96	0	10	204	90734.2
480	202004	152	1.6	8192	13.3	40.96	0	10	138	84221
481	202004	154	1.6	8192	13.3	40.96	0	10	447	87142.1
482	202004	156	1.1	8192	13.3	40.96	0	10	1740	131119.1
483	202004	157	1.1	8192	13.3	40.96	0	10	1454	131134.1
484	202004	158	1.1	8192	13.3	40.96	0	10	1579	131184.8
485	202004	159	1.1	8192	13.3	40.96	0	10	2099	102269.1
486	202004	160	1.1	8192	13.3	40.96	0	10	1325	102485.6
487	202004	161	1.1	8192	13.3	40.96	0	10	2043	101793.1
488	202004	162	2.6	16384	16	58.98	0	10	603	242984

489	202004	163	2.3	16384	16	58.98	0	10	753	280213.9
490	202004	164	2.6	16384	16	58.98	0	10	407	240730.7
491	202004	165	2.3	16384	16	58.98	0	10	511	284401.4
492	202004	185	1.6	8192	13.3	20.74	1	12	195	112081.7
493	202004	188	1.3	8192	12.5	20.74	1	12	1120	114643.8
494	202004	189	1.3	8192	12.5	20.74	1	12	686	111210.7
495	202004	190	1.3	8192	12.5	20.74	1	12	371	114581.3
496	202004	191	1.5	4096	12.5	20.74	1	12	330	85856.4
497	202004	192	1.5	4096	12.5	20.74	1	12	493	83019.5
498	202004	193	1.5	4096	12.5	20.74	1	12	161	79145.2
499	202004	194	2.2	8192	15.6	20.74	1	12	301	167133.6
500	202004	195	2.2	8192	15.6	20.74	1	12	1271	165150.7
501	202004	196	2.2	8192	15.6	20.74	1	12	356	172446.8
502	202004	197	2.3	4096	15.6	20.74	1	12	306	122147.2
503	202004	198	2.3	4096	15.6	20.74	1	12	758	147199.4
504	202004	199	2.3	4096	15.6	20.74	1	12	158	130429.6
505	202004	201	1.8	4096	15.6	10.49	1	12	3751	102626
506	202004	202	1.8	4096	15.6	10.49	1	12	1654	102180.6
507	202004	203	1.8	8192	13.3	20.74	1	12	800	170887.7
508	202004	204	1.8	8192	13.3	20.74	1	12	381	160729.5
509	202004	205	1.8	8192	13.3	20.74	1	12	407	144333
510	202004	206	1.6	8192	13.3	20.74	1	12	658	152154
511	202004	207	1.6	8192	13.3	20.74	1	12	1014	152742
512	202004	208	1.6	8192	13.3	20.74	1	12	977	154982.2
513	202004	209	1.8	8192	13.3	20.74	1	12	486	178361.2
514	202004	210	1.8	8192	14	20.74	1	12	1661	139635.4
515	202004	211	1.8	8192	14	20.74	1	12	702	142611
516	202004	213	2.6	8192	15.6	82.94	0	12	260	205918.4
517	202004	217	2.3	8192	15.6	20.74	1	12	3145	147456.8
518	202004	218	1.2	8192	12.5	20.74	1	12	1449	137506.5
519	202004	219	1.2	8192	12.5	20.74	1	12	288	151654.5
520	202004	220	1.2	8192	12.5	20.74	1	12	306	153205.8
521	202004	221	1	8192	12.5	20.74	1	12	1893	132417.2
522	202004	222	1	8192	12.5	20.74	1	12	363	135833.7
523	202004	223	1	8192	12.5	20.74	1	12	313	135158.5

524	202004	224	1.5	4096	12.5	20.74	1	12	725	100810.7
525	202004	245	1.6	8192	13.3	20.74	1	9	310	102134.4
526	202004	247	2.3	8192	15.6	20.74	0	9	1658	93523.8
527	202004	248	1.8	4096	15.6	10.49	1	9	101	57149.3
528	202004	249	1.8	4096	15.6	10.49	1	9	275	64070.8
529	202004	250	2.3	4096	15.6	10.49	1	9	203	69540.7
530	202004	251	2.6	8192	15.6	20.74	1	9	989	125663.6
531	202004	252	2.6	16384	15.6	20.74	1	9	323	151450.5
532	202004	253	2.3	8192	15.6	20.74	1	9	1987	93979.3
533	202004	254	1.1	4096	11.6	10.49	1	9	882	47769.3
534	202004	255	1.1	4096	11.6	10.49	1	9	886	55304
535	202004	256	1.8	8192	17.3	20.74	1	9	132	106691.5
536	202004	257	1.8	8192	15.6	20.74	1	9	2036	102034.5
537	202004	258	2.1	8192	13.3	20.74	1	9	1180	97142.9
538	202004	259	1.6	8192	13.3	20.74	1	9	546	92818.3
539	202004	260	1.6	8192	13.3	40.96	0	9	748	129691.6
540	202004	261	2.1	8192	13.3	20.74	1	9	230	97280
541	202004	262	2.1	8192	15.6	20.74	1	9	131	47988.2
542	202004	263	2.1	8192	15.6	20.74	1	9	265	61307.3
543	202004	264	2.1	8192	15.6	20.74	1	9	314	62580.4
544	202004	265	2.1	8192	15.6	20.74	1	9	255	62224.5
545	202004	267	2.6	8192	15.6	20.74	1	9	1379	77872.5
546	202004	268	2.1	8192	13.3	40.96	0	9	1081	108343.8
547	202004	269	2.3	8192	13.3	40.96	0	9	1285	120221.3
548	202004	272	1.9	4096	15.6	10.49	1	9	474	63963.1
549	202004	303	2.4	4096	13.3	20.74	1	9	151	70338.3
550	202004	321	2.1	8192	14	20.74	1	1	105	84467.2
551	202004	352	1.8	8192	16.1	20.74	1	8	200	173211
552	202004	353	1.8	8192	16.1	20.74	1	8	137	181872.5
553	202004	354	1.8	8192	15.6	20.74	1	8	1329	130826.7
554	202004	355	1.6	8192	13.3	20.74	1	8	620	174426.6
555	202004	356	1.6	8192	13.3	20.74	1	8	785	165400.7
556	202004	361	1.8	4096	15.6	20.74	1	8	3311	124140.3
557	202004	363	2.2	4096	15.6	20.74	1	8	162	117344.9
558	202004	364	1.6	8192	15.6	20.74	1	8	208	170045.8

559	202004	365	1.8	4096	13.3	20.74	1	8	1963	134838.1
560	202004	366	1.8	4096	13.3	20.74	1	8	1579	118835.3
561	202005	48	2.3	4096	15.6	20.74	1	7	206	56973
562	202005	49	1.6	8192	15.6	20.74	1	7	2254	98672.8
563	202005	50	1.1	4096	11.6	10.49	1	7	179	29006.6
564	202005	51	1.1	4096	11.6	10.49	1	7	170	48338.6
565	202005	57	2.6	16384	15.6	20.74	1	4	132	127291.1
566	202005	59	2.4	8192	15.6	20.74	1	4	158	88494.3
567	202005	73	2.2	4096	13.3	20.74	0	5	102	54692.5
568	202005	78	1.1	4096	15.6	20.74	1	5	183	41571.1
569	202005	93	2.2	4096	13.3	20.74	1	8	727	115266.1
570	202005	94	2.2	4096	12.5	20.74	1	8	133	127680.4
571	202005	97	1.8	4096	14	10.49	1	11	1028	48631.1
572	202005	111	1.5	4096	13.3	20.74	1	11	1260	127422.3
573	202005	112	2.6	8192	17.3	20.74	1	11	1912	177246.8
574	202005	113	2.1	4096	17.3	20.74	1	11	369	151564.5
575	202005	114	2.6	8192	15.6	20.74	1	11	530	170220.9
576	202005	115	2.6	8192	15.6	20.74	1	11	490	173320.9
577	202005	116	2.6	8192	15.6	20.74	1	11	1394	176576.7
578	202005	117	1.8	8192	13.3	20.74	1	11	4508	171104.1
579	202005	118	1.6	8192	13.3	20.74	1	11	472	153155.7
580	202005	119	1.8	8192	13.3	20.74	1	11	240	182080.8
581	202005	120	1.8	4096	15.6	10.49	1	11	4133	127288.8
582	202005	122	2.6	8192	15.6	82.94	1	11	491	219709.3
583	202005	123	1.8	8192	15.6	20.74	1	11	3720	143147.5
584	202005	125	1.8	8192	15.6	20.74	1	11	2325	145264.2
585	202005	139	2.4	8192	13.3	40.96	0	10	378	163009
586	202005	141	2.4	8192	13.3	40.96	0	10	178	185203.5
587	202005	146	1.4	8192	13.3	40.96	0	10	423	112311
588	202005	147	1.4	8192	13.3	40.96	0	10	238	133758.2
589	202005	148	1.4	8192	13.3	40.96	0	10	152	121920.1
590	202005	149	1.4	8192	13.3	40.96	0	10	186	133907.4
591	202005	156	1.1	8192	13.3	40.96	0	10	1142	131760.9
592	202005	157	1.1	8192	13.3	40.96	0	10	1075	130576.1
593	202005	158	1.1	8192	13.3	40.96	0	10	1505	131419.6

594	202005	159	1.1	8192	13.3	40.96	0	10	2695	102697
595	202005	160	1.1	8192	13.3	40.96	0	10	2334	102071.1
596	202005	161	1.1	8192	13.3	40.96	0	10	3854	101927.1
597	202005	162	2.6	16384	16	58.98	0	10	583	242251.3
598	202005	163	2.3	16384	16	58.98	0	10	611	279857.5
599	202005	164	2.6	16384	16	58.98	0	10	561	243633.3
600	202005	165	2.3	16384	16	58.98	0	10	339	282342.6
601	202005	166	2	16384	13.3	40.96	0	10	1977	185426.3
602	202005	167	2	16384	13.3	40.96	0	10	608	205536.3
603	202005	168	2	16384	13.3	40.96	0	10	997	184618
604	202005	169	2	16384	13.3	40.96	0	10	387	203728.6
605	202005	170	1.4	8192	13.3	40.96	0	10	1945	132042.3
606	202005	171	1.4	8192	13.3	40.96	0	10	1749	150752.1
607	202005	172	1.4	8192	13.3	40.96	0	10	1165	131187.7
608	202005	173	1.4	8192	13.3	40.96	0	10	1047	151107.5
609	202005	175	1.6	8192	15.6	20.74	1	5	142	87436.1
610	202005	188	1.3	8192	12.5	20.74	1	12	293	111244.6
611	202005	189	1.3	8192	12.5	20.74	1	12	124	104563.9
612	202005	191	1.5	4096	12.5	20.74	1	12	108	87552.4
613	202005	192	1.5	4096	12.5	20.74	1	12	168	81974.4
614	202005	195	2.2	8192	15.6	20.74	1	12	580	165711.5
615	202005	196	2.2	8192	15.6	20.74	1	12	212	169871.8
616	202005	197	2.3	4096	15.6	20.74	1	12	116	122648.6
617	202005	198	2.3	4096	15.6	20.74	1	12	482	151020.8
618	202005	201	1.8	4096	15.6	10.49	1	12	3420	102613.1
619	202005	202	1.8	4096	15.6	10.49	1	12	1764	99972
620	202005	203	1.8	8192	13.3	20.74	1	12	230	168623
621	202005	206	1.6	8192	13.3	20.74	1	12	174	156068.3
622	202005	207	1.6	8192	13.3	20.74	1	12	163	151152
623	202005	208	1.6	8192	13.3	20.74	1	12	233	150517.5
624	202005	209	1.8	8192	13.3	20.74	1	12	236	169940
625	202005	210	1.8	8192	14	20.74	1	12	860	137926.3
626	202005	211	1.8	8192	14	20.74	1	12	273	142290.4
627	202005	212	2.1	4096	14	20.74	1	12	1758	127601.6
628	202005	213	2.6	8192	15.6	82.94	0	12	262	205919.2

629	202005	216	2.3	8192	15.6	20.74	1	12	5357	132717.2
630	202005	217	2.3	8192	15.6	20.74	1	12	2431	146851.8
631	202005	218	1.2	8192	12.5	20.74	1	12	725	138714.5
632	202005	219	1.2	8192	12.5	20.74	1	12	320	156623.1
633	202005	220	1.2	8192	12.5	20.74	1	12	283	157189
634	202005	221	1	8192	12.5	20.74	1	12	703	132066.2
635	202005	222	1	8192	12.5	20.74	1	12	230	132645.7
636	202005	223	1	8192	12.5	20.74	1	12	183	133835.1
637	202005	224	1.5	4096	12.5	20.74	1	12	557	101103.9
638	202005	247	2.3	8192	15.6	20.74	0	9	2609	94509.9
639	202005	251	2.6	8192	15.6	20.74	1	9	839	124465
640	202005	252	2.6	16384	15.6	20.74	1	9	370	151402.5
641	202005	253	2.3	8192	15.6	20.74	1	9	1427	94157.6
642	202005	254	1.1	4096	11.6	10.49	1	9	290	46181.1
643	202005	255	1.1	4096	11.6	10.49	1	9	176	58247.1
644	202005	257	1.8	8192	15.6	20.74	1	9	476	99937.3
645	202005	258	2.1	8192	13.3	20.74	1	9	510	94806.6
646	202005	259	1.6	8192	13.3	20.74	1	9	248	91628.3
647	202005	260	1.6	8192	13.3	40.96	0	9	220	126663.1
648	202005	264	2.1	8192	15.6	20.74	1	9	206	60866.7
649	202005	265	2.1	8192	15.6	20.74	1	9	137	62906.9
650	202005	267	2.6	8192	15.6	20.74	1	9	619	78912.5
651	202005	268	2.1	8192	13.3	40.96	0	9	406	115337.5
652	202005	269	2.3	8192	13.3	40.96	0	9	570	117672
653	202005	270	1.9	4096	15.6	10.49	1	9	238	61855.3
654	202005	271	1.9	4096	15.6	10.49	1	9	1035	66481.6
655	202005	272	1.9	4096	15.6	10.49	1	9	2799	63923.7
656	202005	275	1.9	4096	15.6	10.49	1	9	254	73313.8
657	202005	277	2.1	4096	15.6	20.74	1	9	141	81672.7
658	202005	279	1.8	8192	15.6	20.74	1	9	150	118491.1
659	202005	280	1.6	8192	15.6	20.74	1	9	176	107324.9
660	202005	352	1.8	8192	16.1	20.74	1	8	219	168868.1
661	202005	353	1.8	8192	16.1	20.74	1	8	115	170428.8
662	202005	354	1.8	8192	15.6	20.74	1	8	3061	130538.7
663	202005	355	1.6	8192	13.3	20.74	1	8	371	176434.5

664	202005	356	1.6	8192	13.3	20.74	1	8	1070	160937.5
665	202005	357	1.8	8192	15.6	20.74	1	8	103	146437
666	202005	358	1.8	8192	15.6	20.74	1	8	354	139352.4
667	202005	361	1.8	4096	15.6	20.74	1	8	1360	123231.6
668	202005	364	1.6	8192	15.6	20.74	1	8	170	163326.3
669	202005	365	1.8	4096	13.3	20.74	1	8	704	133162.1
670	202005	366	1.8	4096	13.3	20.74	1	8	554	112957.8
671	202006	48	2.3	4096	15.6	20.74	1	7	187	55302.2
672	202006	49	1.6	8192	15.6	20.74	1	7	1220	98855.9
673	202006	50	1.1	4096	11.6	10.49	1	7	178	28549.9
674	202006	51	1.1	4096	11.6	10.49	1	7	154	48435.9
675	202006	59	2.4	8192	15.6	20.74	1	4	175	90301.4
676	202006	78	1.1	4096	15.6	20.74	1	5	279	40296.3
677	202006	93	2.2	4096	13.3	20.74	1	8	271	112501
678	202006	97	1.8	4096	14	10.49	1	11	634	44719.1
679	202006	111	1.5	4096	13.3	20.74	1	11	737	133016.4
680	202006	112	2.6	8192	17.3	20.74	1	11	1285	175355.3
681	202006	113	2.1	4096	17.3	20.74	1	11	375	147711.2
682	202006	114	2.6	8192	15.6	20.74	1	11	462	161845.8
683	202006	115	2.6	8192	15.6	20.74	1	11	501	161705.3
684	202006	116	2.6	8192	15.6	20.74	1	11	1442	168510.5
685	202006	117	1.8	8192	13.3	20.74	1	11	1629	168898.1
686	202006	118	1.6	8192	13.3	20.74	1	11	228	153171.6
687	202006	119	1.8	8192	13.3	20.74	1	11	168	178319.5
688	202006	120	1.8	4096	15.6	10.49	1	11	3343	128450.4
689	202006	121	1.8	4096	15.6	10.49	1	11	2038	100591.1
690	202006	122	2.6	8192	15.6	82.94	1	11	356	214475
691	202006	123	1.8	8192	15.6	20.74	1	11	4243	142299.7
692	202006	125	1.8	8192	15.6	20.74	1	11	2412	143461.2
693	202006	146	1.4	8192	13.3	40.96	0	10	110	103373.1
694	202006	147	1.4	8192	13.3	40.96	0	10	174	117308.9
695	202006	149	1.4	8192	13.3	40.96	0	10	139	118815.2
696	202006	156	1.1	8192	13.3	40.96	0	10	2018	132166.7
697	202006	157	1.1	8192	13.3	40.96	0	10	1807	132241.5
698	202006	158	1.1	8192	13.3	40.96	0	10	1780	132461.3

699	202006	159	1.1	8192	13.3	40.96	0	10	4156	102913.4
700	202006	160	1.1	8192	13.3	40.96	0	10	2953	102496.7
701	202006	161	1.1	8192	13.3	40.96	0	10	3676	102923.8
702	202006	162	2.6	16384	16	58.98	0	10	704	243255.6
703	202006	163	2.3	16384	16	58.98	0	10	583	286213.3
704	202006	164	2.6	16384	16	58.98	0	10	483	245059.3
705	202006	165	2.3	16384	16	58.98	0	10	373	283331.3
706	202006	166	2	16384	13.3	40.96	0	10	2617	184780.3
707	202006	167	2	16384	13.3	40.96	0	10	1205	205949.6
708	202006	168	2	16384	13.3	40.96	0	10	1146	186425.4
709	202006	169	2	16384	13.3	40.96	0	10	674	206857.8
710	202006	170	1.4	8192	13.3	40.96	0	10	3349	132248.7
711	202006	171	1.4	8192	13.3	40.96	0	10	1595	151582.7
712	202006	172	1.4	8192	13.3	40.96	0	10	1844	131841.2
713	202006	173	1.4	8192	13.3	40.96	0	10	640	151419.4
714	202006	175	1.6	8192	15.6	20.74	1	5	257	82319
715	202006	192	1.5	4096	12.5	20.74	1	12	118	72860.7
716	202006	195	2.2	8192	15.6	20.74	1	12	177	164962.4
717	202006	197	2.3	4096	15.6	20.74	1	12	100	119261.3
718	202006	198	2.3	4096	15.6	20.74	1	12	337	154257.5
719	202006	199	2.3	4096	15.6	20.74	1	12	133	123833.1
720	202006	201	1.8	4096	15.6	10.49	1	12	2935	100077.2
721	202006	202	1.8	4096	15.6	10.49	1	12	1683	91225
722	202006	203	1.8	8192	13.3	20.74	1	12	145	150541.1
723	202006	209	1.8	8192	13.3	20.74	1	12	118	155059
724	202006	210	1.8	8192	14	20.74	1	12	498	135656.8
725	202006	211	1.8	8192	14	20.74	1	12	222	141172.2
726	202006	212	2.1	4096	14	20.74	1	12	1513	125998.7
727	202006	213	2.6	8192	15.6	82.94	0	12	208	193754.3
728	202006	216	2.3	8192	15.6	20.74	1	12	4608	126330.1
729	202006	217	2.3	8192	15.6	20.74	1	12	2318	144758.4
730	202006	218	1.2	8192	12.5	20.74	1	12	246	146262.6
731	202006	219	1.2	8192	12.5	20.74	1	12	167	153691.6
732	202006	220	1.2	8192	12.5	20.74	1	12	122	156006
733	202006	221	1	8192	12.5	20.74	1	12	409	130653

734	202006	222	1	8192	12.5	20.74	1	12	143	131085.7
735	202006	223	1	8192	12.5	20.74	1	12	105	133414.1
736	202006	224	1.5	4096	12.5	20.74	1	12	177	99464
737	202006	247	2.3	8192	15.6	20.74	0	9	1076	89706.7
738	202006	251	2.6	8192	15.6	20.74	1	9	486	122746
739	202006	252	2.6	16384	15.6	20.74	1	9	133	147888.9
740	202006	253	2.3	8192	15.6	20.74	1	9	986	93434.6
741	202006	258	2.1	8192	13.3	20.74	1	9	310	93974.1
742	202006	259	1.6	8192	13.3	20.74	1	9	236	92351.8
743	202006	260	1.6	8192	13.3	40.96	0	9	180	126336.3
744	202006	261	2.1	8192	13.3	20.74	1	9	124	97067
745	202006	267	2.6	8192	15.6	20.74	1	9	926	78978.6
746	202006	268	2.1	8192	13.3	40.96	0	9	321	116186.3
747	202006	269	2.3	8192	13.3	40.96	0	9	281	117036.7
748	202006	270	1.9	4096	15.6	10.49	1	9	660	62249.7
749	202006	271	1.9	4096	15.6	10.49	1	9	681	66319.4
750	202006	272	1.9	4096	15.6	10.49	1	9	2309	63574
751	202006	275	1.9	4096	15.6	10.49	1	9	310	73208.8
752	202006	277	2.1	4096	15.6	20.74	1	9	2043	76390
753	202006	279	1.8	8192	15.6	20.74	1	9	736	116180.4
754	202006	280	1.6	8192	15.6	20.74	1	9	892	106345.5
755	202006	352	1.8	8192	16.1	20.74	1	8	222	160093.9
756	202006	353	1.8	8192	16.1	20.74	1	8	108	158312.6
757	202006	354	1.8	8192	15.6	20.74	1	8	2985	129953.1
758	202006	355	1.6	8192	13.3	20.74	1	8	205	168852.8
759	202006	356	1.6	8192	13.3	20.74	1	8	756	159529.8
760	202006	357	1.8	8192	15.6	20.74	1	8	307	145885
761	202006	358	1.8	8192	15.6	20.74	1	8	188	138074.2
762	202006	361	1.8	4096	15.6	20.74	1	8	355	121638.8
763	202006	364	1.6	8192	15.6	20.74	1	8	208	149904.1
764	202006	365	1.8	4096	13.3	20.74	1	8	378	130639.2
765	202006	366	1.8	4096	13.3	20.74	1	8	467	119808.9
766	202007	48	2.3	4096	15.6	20.74	1	7	114	55077.3
767	202007	49	1.6	8192	15.6	20.74	1	7	1042	98554.5
768	202007	50	1.1	4096	11.6	10.49	1	7	297	27602.5

769	202007	51	1.1	4096	11.6	10.49	1	7	158	47507
770	202007	59	2.4	8192	15.6	20.74	1	4	118	90608.4
771	202007	78	1.1	4096	15.6	20.74	1	5	307	39311.1
772	202007	85	2.3	8192	13.3	40.96	0	10	338	78000.5
773	202007	87	3.1	8192	13.3	40.96	0	10	212	82836.8
774	202007	93	2.2	4096	13.3	20.74	1	8	212	108922.5
775	202007	97	1.8	4096	14	10.49	1	11	382	45017.2
776	202007	111	1.5	4096	13.3	20.74	1	11	633	131003.2
777	202007	112	2.6	8192	17.3	20.74	1	11	1581	162496.2
778	202007	113	2.1	4096	17.3	20.74	1	11	431	135061.3
779	202007	114	2.6	8192	15.6	20.74	1	11	685	152863.7
780	202007	115	2.6	8192	15.6	20.74	1	11	669	152006.5
781	202007	116	2.6	8192	15.6	20.74	1	11	2555	158275.2
782	202007	117	1.8	8192	13.3	20.74	1	11	2336	168436.8
783	202007	118	1.6	8192	13.3	20.74	1	11	326	147683.3
784	202007	119	1.8	8192	13.3	20.74	1	11	228	168691.5
785	202007	120	1.8	4096	15.6	10.49	1	11	2544	125127.9
786	202007	121	1.8	4096	15.6	10.49	1	11	1458	101268.7
787	202007	122	2.6	8192	15.6	82.94	1	11	346	209557.7
788	202007	123	1.8	8192	15.6	20.74	1	11	1291	135231.8
789	202007	124	1.8	8192	15.6	20.74	1	11	3373	139392.5
790	202007	125	1.8	8192	15.6	20.74	1	11	1683	137843.8
791	202007	131	2.6	16384	15.4	51.84	0	10	101	179079
792	202007	135	2.3	8192	13.3	40.96	0	10	652	120209.5
793	202007	146	1.4	8192	13.3	40.96	0	10	110	101572.2
794	202007	147	1.4	8192	13.3	40.96	0	10	178	122021.5
795	202007	149	1.4	8192	13.3	40.96	0	10	106	118746.3
796	202007	156	1.1	8192	13.3	40.96	0	10	1999	132001.1
797	202007	157	1.1	8192	13.3	40.96	0	10	1696	131717.6
798	202007	158	1.1	8192	13.3	40.96	0	10	1498	131290.1
799	202007	159	1.1	8192	13.3	40.96	0	10	3772	102695.7
800	202007	160	1.1	8192	13.3	40.96	0	10	2980	102503.4
801	202007	161	1.1	8192	13.3	40.96	0	10	2742	102755.5
802	202007	162	2.6	16384	16	58.98	0	10	645	243535
803	202007	163	2.3	16384	16	58.98	0	10	600	284160.9

804	202007	164	2.6	16384	16	58.98	0	10	367	241939.2
805	202007	165	2.3	16384	16	58.98	0	10	336	283409.6
806	202007	166	2	16384	13.3	40.96	0	10	2264	185200
807	202007	167	2	16384	13.3	40.96	0	10	1070	205783.8
808	202007	168	2	16384	13.3	40.96	0	10	1165	185972.4
809	202007	169	2	16384	13.3	40.96	0	10	503	204992
810	202007	170	1.4	8192	13.3	40.96	0	10	2951	131681.4
811	202007	171	1.4	8192	13.3	40.96	0	10	1239	151347.4
812	202007	172	1.4	8192	13.3	40.96	0	10	1236	130936.8
813	202007	173	1.4	8192	13.3	40.96	0	10	591	150433.7
814	202007	175	1.6	8192	15.6	20.74	1	5	239	83073
815	202007	195	2.2	8192	15.6	20.74	1	12	179	160266.8
816	202007	198	2.3	4096	15.6	20.74	1	12	253	150404.8
817	202007	199	2.3	4096	15.6	20.74	1	12	185	117187
818	202007	200	1.8	4096	15.6	10.49	1	12	5367	87120.3
819	202007	201	1.8	4096	15.6	10.49	1	12	2327	90064.3
820	202007	202	1.8	4096	15.6	10.49	1	12	1522	82217.4
821	202007	203	1.8	8192	13.3	20.74	1	12	158	142760.2
822	202007	208	1.6	8192	13.3	20.74	1	12	115	126661.9
823	202007	209	1.8	8192	13.3	20.74	1	12	111	149372.9
824	202007	210	1.8	8192	14	20.74	1	12	537	131541.6
825	202007	211	1.8	8192	14	20.74	1	12	289	134493.5
826	202007	212	2.1	4096	14	20.74	1	12	2138	121132.5
827	202007	213	2.6	8192	15.6	82.94	0	12	221	186639.8
828	202007	216	2.3	8192	15.6	20.74	1	12	2417	125224.3
829	202007	217	2.3	8192	15.6	20.74	1	12	1946	137351.2
830	202007	218	1.2	8192	12.5	20.74	1	12	196	141914.5
831	202007	219	1.2	8192	12.5	20.74	1	12	110	157311.6
832	202007	221	1	8192	12.5	20.74	1	12	327	131246.7
833	202007	222	1	8192	12.5	20.74	1	12	130	130052.8
834	202007	224	1.5	4096	12.5	20.74	1	12	119	99714.9
835	202007	225	2	8192	15.6	20.74	1	12	3960	128004
836	202007	226	2	8192	15.6	20.74	1	12	3744	146862.8
837	202007	227	2	8192	15.6	20.74	1	12	656	138056.7
838	202007	247	2.3	8192	15.6	20.74	0	9	261	86234.8

839	202007	251	2.6	8192	15.6	20.74	1	9	424	119386.7
840	202007	252	2.6	16384	15.6	20.74	1	9	195	134595.8
841	202007	253	2.3	8192	15.6	20.74	1	9	1388	94384.5
842	202007	258	2.1	8192	13.3	20.74	1	9	402	89554.1
843	202007	259	1.6	8192	13.3	20.74	1	9	212	92064.3
844	202007	260	1.6	8192	13.3	40.96	0	9	124	124129.2
845	202007	261	2.1	8192	13.3	20.74	1	9	156	91615.1
846	202007	263	2.1	8192	15.6	20.74	1	9	111	61472.9
847	202007	264	2.1	8192	15.6	20.74	1	9	150	62364.2
848	202007	267	2.6	8192	15.6	20.74	1	9	833	78703.5
849	202007	268	2.1	8192	13.3	40.96	0	9	424	111517.7
850	202007	269	2.3	8192	13.3	40.96	0	9	401	114294.5
851	202007	270	1.9	4096	15.6	10.49	1	9	640	61435.4
852	202007	271	1.9	4096	15.6	10.49	1	9	1324	62650.3
853	202007	272	1.9	4096	15.6	10.49	1	9	1067	64063.2
854	202007	275	1.9	4096	15.6	10.49	1	9	418	67688.9
855	202007	277	2.1	4096	15.6	20.74	1	9	1406	74617.9
856	202007	279	1.8	8192	15.6	20.74	1	9	746	114219.4
857	202007	280	1.6	8192	15.6	20.74	1	9	746	105615.9
858	202007	352	1.8	8192	16.1	20.74	1	8	161	145894
859	202007	353	1.8	8192	16.1	20.74	1	8	121	146679.8
860	202007	354	1.8	8192	15.6	20.74	1	8	3151	129451.3
861	202007	355	1.6	8192	13.3	20.74	1	8	205	158391.6
862	202007	356	1.6	8192	13.3	20.74	1	8	633	158322.8
863	202007	357	1.8	8192	15.6	20.74	1	8	632	139859.7
864	202007	358	1.8	8192	15.6	20.74	1	8	238	131878.6
865	202007	361	1.8	4096	15.6	20.74	1	8	313	106988.7
866	202007	364	1.6	8192	15.6	20.74	1	8	195	144874.1
867	202007	365	1.8	4096	13.3	20.74	1	8	444	133346.1
868	202007	366	1.8	4096	13.3	20.74	1	8	268	121653
869	202008	49	1.6	8192	15.6	20.74	1	7	756	98095.7
870	202008	50	1.1	4096	11.6	10.49	1	7	152	27443.8
871	202008	51	1.1	4096	11.6	10.49	1	7	163	47088.2
872	202008	59	2.4	8192	15.6	20.74	1	4	160	82786.2
873	202008	78	1.1	4096	15.6	20.74	1	5	142	38971.1

874	202008	92	1.8	8192	13.3	20.74	1	8	164	132465.7
875	202008	93	2.2	4096	13.3	20.74	1	8	174	102414.1
876	202008	94	2.2	4096	12.5	20.74	1	8	134	95230.4
877	202008	97	1.8	4096	14	10.49	1	11	293	43834.5
878	202008	111	1.5	4096	13.3	20.74	1	11	700	129278.4
879	202008	112	2.6	8192	17.3	20.74	1	11	602	165903.3
880	202008	113	2.1	4096	17.3	20.74	1	11	327	119302.2
881	202008	114	2.6	8192	15.6	20.74	1	11	228	143488.1
882	202008	115	2.6	8192	15.6	20.74	1	11	223	143838
883	202008	116	2.6	8192	15.6	20.74	1	11	866	153100.2
884	202008	117	1.8	8192	13.3	20.74	1	11	2008	161513.7
885	202008	118	1.6	8192	13.3	20.74	1	11	311	145620.1
886	202008	119	1.8	8192	13.3	20.74	1	11	175	163336.1
887	202008	120	1.8	4096	15.6	10.49	1	11	1800	121840.9
888	202008	121	1.8	4096	15.6	10.49	1	11	708	103801.8
889	202008	122	2.6	8192	15.6	82.94	1	11	290	209140
890	202008	123	1.8	8192	15.6	20.74	1	11	357	129636.2
891	202008	124	1.8	8192	15.6	20.74	1	11	1743	141590.8
892	202008	125	1.8	8192	15.6	20.74	1	11	925	133061.4
893	202008	147	1.4	8192	13.3	40.96	0	10	144	123055.9
894	202008	156	1.1	8192	13.3	40.96	0	10	1768	130863.6
895	202008	157	1.1	8192	13.3	40.96	0	10	1313	130325.1
896	202008	158	1.1	8192	13.3	40.96	0	10	1462	129752.1
897	202008	159	1.1	8192	13.3	40.96	0	10	3149	101647
898	202008	160	1.1	8192	13.3	40.96	0	10	2798	101631.8
899	202008	161	1.1	8192	13.3	40.96	0	10	2554	101584.4
900	202008	162	2.6	16384	16	58.98	0	10	592	242439.5
901	202008	163	2.3	16384	16	58.98	0	10	536	282692.4
902	202008	164	2.6	16384	16	58.98	0	10	372	242634.4
903	202008	165	2.3	16384	16	58.98	0	10	312	282827.1
904	202008	166	2	16384	13.3	40.96	0	10	2417	185122.7
905	202008	167	2	16384	13.3	40.96	0	10	986	204897.3
906	202008	168	2	16384	13.3	40.96	0	10	1134	186180
907	202008	169	2	16384	13.3	40.96	0	10	509	204527.6
908	202008	170	1.4	8192	13.3	40.96	0	10	2151	131610.4

909	202008	171	1.4	8192	13.3	40.96	0	10	1008	150834.6
910	202008	172	1.4	8192	13.3	40.96	0	10	1822	131353.5
911	202008	173	1.4	8192	13.3	40.96	0	10	421	149740.9
912	202008	175	1.6	8192	15.6	20.74	1	5	310	82046.4
913	202008	195	2.2	8192	15.6	20.74	1	12	126	149076
914	202008	198	2.3	4096	15.6	20.74	1	12	163	145489.8
915	202008	199	2.3	4096	15.6	20.74	1	12	141	106718.6
916	202008	200	1.8	4096	15.6	10.49	1	12	1579	82969.1
917	202008	201	1.8	4096	15.6	10.49	1	12	956	89844.3
918	202008	202	1.8	4096	15.6	10.49	1	12	597	73859.5
919	202008	203	1.8	8192	13.3	20.74	1	12	135	139522
920	202008	208	1.6	8192	13.3	20.74	1	12	118	122460.6
921	202008	210	1.8	8192	14	20.74	1	12	806	131057
922	202008	211	1.8	8192	14	20.74	1	12	378	133336.9
923	202008	212	2.1	4096	14	20.74	1	12	2441	118207.1
924	202008	213	2.6	8192	15.6	82.94	0	12	183	187388.8
925	202008	215	2.3	8192	15.6	20.74	1	12	1527	117534.8
926	202008	216	2.3	8192	15.6	20.74	1	12	724	115793.8
927	202008	217	2.3	8192	15.6	20.74	1	12	721	133580.1
928	202008	218	1.2	8192	12.5	20.74	1	12	209	141986.1
929	202008	221	1	8192	12.5	20.74	1	12	291	129103.1
930	202008	222	1	8192	12.5	20.74	1	12	154	126693.3
931	202008	223	1	8192	12.5	20.74	1	12	123	127467
932	202008	224	1.5	4096	12.5	20.74	1	12	127	96965
933	202008	227	2	8192	15.6	20.74	1	12	1932	135370
934	202008	247	2.3	8192	15.6	20.74	0	9	105	84567.8
935	202008	251	2.6	8192	15.6	20.74	1	9	426	118445.4
936	202008	252	2.6	16384	15.6	20.74	1	9	155	122115
937	202008	253	2.3	8192	15.6	20.74	1	9	900	94224.2
938	202008	258	2.1	8192	13.3	20.74	1	9	399	86329.1
939	202008	259	1.6	8192	13.3	20.74	1	9	178	92425.1
940	202008	260	1.6	8192	13.3	40.96	0	9	104	121219.5
941	202008	261	2.1	8192	13.3	20.74	1	9	139	89704.6
942	202008	267	2.6	8192	15.6	20.74	1	9	833	78595.9
943	202008	268	2.1	8192	13.3	40.96	0	9	637	105661.8

944	202008	269	2.3	8192	13.3	40.96	0	9	288	113355.5
945	202008	270	1.9	4096	15.6	10.49	1	9	416	61765.8
946	202008	271	1.9	4096	15.6	10.49	1	9	1645	61511.9
947	202008	272	1.9	4096	15.6	10.49	1	9	2338	61258.2
948	202008	275	1.9	4096	15.6	10.49	1	9	464	66640
949	202008	277	2.1	4096	15.6	20.74	1	9	603	75647.7
950	202008	279	1.8	8192	15.6	20.74	1	9	658	114889.3
951	202008	280	1.6	8192	15.6	20.74	1	9	518	105554.6
952	202008	352	1.8	8192	16.1	20.74	1	8	166	131501.9
953	202008	353	1.8	8192	16.1	20.74	1	8	172	134081.7
954	202008	354	1.8	8192	15.6	20.74	1	8	1786	132888.4
955	202008	355	1.6	8192	13.3	20.74	1	8	201	160291.6
956	202008	356	1.6	8192	13.3	20.74	1	8	557	156743.4
957	202008	357	1.8	8192	15.6	20.74	1	8	497	134134
958	202008	358	1.8	8192	15.6	20.74	1	8	299	128109.6
959	202008	361	1.8	4096	15.6	20.74	1	8	153	106219.3
960	202008	364	1.6	8192	15.6	20.74	1	8	260	131563.4
961	202008	365	1.8	4096	13.3	20.74	1	8	466	129793.2
962	202008	366	1.8	4096	13.3	20.74	1	8	409	116760.9
963	202009	48	2.3	4096	15.6	20.74	1	7	107	45253.4
964	202009	49	1.6	8192	15.6	20.74	1	7	598	97572.7
965	202009	50	1.1	4096	11.6	10.49	1	7	126	25358.8
966	202009	93	2.2	4096	13.3	20.74	1	8	164	100630.5
967	202009	97	1.8	4096	14	10.49	1	11	230	44098.1
968	202009	111	1.5	4096	13.3	20.74	1	11	569	128242.4
969	202009	112	2.6	8192	17.3	20.74	1	11	329	159893
970	202009	113	2.1	4096	17.3	20.74	1	11	200	103258
971	202009	114	2.6	8192	15.6	20.74	1	11	181	133620.3
972	202009	115	2.6	8192	15.6	20.74	1	11	154	140633.1
973	202009	116	2.6	8192	15.6	20.74	1	11	685	143859.2
974	202009	117	1.8	8192	13.3	20.74	1	11	2342	153072.8
975	202009	118	1.6	8192	13.3	20.74	1	11	223	142887.2
976	202009	119	1.8	8192	13.3	20.74	1	11	145	149808.7
977	202009	120	1.8	4096	15.6	10.49	1	11	1246	115243.3
978	202009	121	1.8	4096	15.6	10.49	1	11	632	102301.3

979	202009	122	2.6	8192	15.6	82.94	1	11	363	201894.2
980	202009	123	1.8	8192	15.6	20.74	1	11	133	122249.8
981	202009	124	1.8	8192	15.6	20.74	1	11	1044	136809.7
982	202009	125	1.8	8192	15.6	20.74	1	11	528	127921.5
983	202009	147	1.4	8192	13.3	40.96	0	10	142	108074.7
984	202009	149	1.4	8192	13.3	40.96	0	10	103	108831
985	202009	156	1.1	8192	13.3	40.96	0	10	1501	130481.7
986	202009	157	1.1	8192	13.3	40.96	0	10	1583	130228.6
987	202009	158	1.1	8192	13.3	40.96	0	10	1226	130055.5
988	202009	159	1.1	8192	13.3	40.96	0	10	2832	101580.5
989	202009	160	1.1	8192	13.3	40.96	0	10	2987	101378.5
990	202009	161	1.1	8192	13.3	40.96	0	10	2008	102006.6
991	202009	162	2.6	16384	16	58.98	0	10	425	241814
992	202009	163	2.3	16384	16	58.98	0	10	497	284064.7
993	202009	164	2.6	16384	16	58.98	0	10	353	242193.4
994	202009	165	2.3	16384	16	58.98	0	10	216	280623.2
995	202009	166	2	16384	13.3	40.96	0	10	2032	184524.7
996	202009	167	2	16384	13.3	40.96	0	10	855	205547.1
997	202009	168	2	16384	13.3	40.96	0	10	1080	185107.4
998	202009	169	2	16384	13.3	40.96	0	10	485	204644
999	202009	170	1.4	8192	13.3	40.96	0	10	1473	132441.5
1000	202009	171	1.4	8192	13.3	40.96	0	10	810	150435.2
1001	202009	172	1.4	8192	13.3	40.96	0	10	1268	131532.9
1002	202009	173	1.4	8192	13.3	40.96	0	10	338	150095.7
1003	202009	175	1.6	8192	15.6	20.74	1	5	266	83370.8
1004	202009	198	2.3	4096	15.6	20.74	1	12	121	135002.7
1005	202009	200	1.8	4096	15.6	10.49	1	12	4588	92682
1006	202009	201	1.8	4096	15.6	10.49	1	12	1526	93669
1007	202009	202	1.8	4096	15.6	10.49	1	12	1174	89407.9
1008	202009	210	1.8	8192	14	20.74	1	12	677	122264.4
1009	202009	211	1.8	8192	14	20.74	1	12	326	125599
1010	202009	212	2.1	4096	14	20.74	1	12	2622	108352.9
1011	202009	213	2.6	8192	15.6	82.94	0	12	170	185041.8
1012	202009	215	2.3	8192	15.6	20.74	1	12	706	122505.5
1013	202009	216	2.3	8192	15.6	20.74	1	12	268	111556.3

1014	202009	217	2.3	8192	15.6	20.74	1	12	375	129363.6
1015	202009	218	1.2	8192	12.5	20.74	1	12	254	140706.6
1016	202009	219	1.2	8192	12.5	20.74	1	12	126	154530
1017	202009	221	1	8192	12.5	20.74	1	12	211	127395.9
1018	202009	224	1.5	4096	12.5	20.74	1	12	134	92849.9
1019	202009	227	2	8192	15.6	20.74	1	12	2452	134442.6
1020	202009	251	2.6	8192	15.6	20.74	1	9	310	107095.2
1021	202009	252	2.6	16384	15.6	20.74	1	9	103	122017.6
1022	202009	253	2.3	8192	15.6	20.74	1	9	1526	91281.6
1023	202009	258	2.1	8192	13.3	20.74	1	9	268	85361.5
1024	202009	259	1.6	8192	13.3	20.74	1	9	152	90089
1025	202009	261	2.1	8192	13.3	20.74	1	9	149	89016.8
1026	202009	265	2.1	8192	15.6	20.74	1	9	124	53193.5
1027	202009	267	2.6	8192	15.6	20.74	1	9	476	78678.8
1028	202009	268	2.1	8192	13.3	40.96	0	9	349	107377.3
1029	202009	269	2.3	8192	13.3	40.96	0	9	258	113199.5
1030	202009	270	1.9	4096	15.6	10.49	1	9	388	61474
1031	202009	271	1.9	4096	15.6	10.49	1	9	1534	60962
1032	202009	272	1.9	4096	15.6	10.49	1	9	1183	61640.8
1033	202009	275	1.9	4096	15.6	10.49	1	9	368	67246.6
1034	202009	277	2.1	4096	15.6	20.74	1	9	311	75653
1035	202009	279	1.8	8192	15.6	20.74	1	9	518	113579.4
1036	202009	280	1.6	8192	15.6	20.74	1	9	708	102335.6
1037	202009	354	1.8	8192	15.6	20.74	1	8	997	133418.4
1038	202009	355	1.6	8192	13.3	20.74	1	8	253	154136.7
1039	202009	356	1.6	8192	13.3	20.74	1	8	477	155399.8
1040	202009	357	1.8	8192	15.6	20.74	1	8	414	132226.2
1041	202009	358	1.8	8192	15.6	20.74	1	8	302	123179
1042	202009	361	1.8	4096	15.6	20.74	1	8	132	96962.8
1043	202009	364	1.6	8192	15.6	20.74	1	8	189	114953.9
1044	202009	365	1.8	4096	13.3	20.74	1	8	380	128414
1045	202009	366	1.8	4096	13.3	20.74	1	8	336	115425.5
1046	202010	49	1.6	8192	15.6	20.74	1	7	362	98687.9
1047	202010	51	1.1	4096	11.6	10.49	1	7	106	40369.7
1048	202010	93	2.2	4096	13.3	20.74	1	8	107	94889.4

1049	202010	97	1.8	4096	14	10.49	1	11	227	40607.9
1050	202010	111	1.5	4096	13.3	20.74	1	11	469	125909.7
1051	202010	112	2.6	8192	17.3	20.74	1	11	345	151545.3
1052	202010	115	2.6	8192	15.6	20.74	1	11	139	133470.2
1053	202010	116	2.6	8192	15.6	20.74	1	11	527	138726.3
1054	202010	117	1.8	8192	13.3	20.74	1	11	2053	150449.9
1055	202010	118	1.6	8192	13.3	20.74	1	11	210	138084.6
1056	202010	119	1.8	8192	13.3	20.74	1	11	108	153041
1057	202010	120	1.8	4096	15.6	10.49	1	11	955	115946.8
1058	202010	121	1.8	4096	15.6	10.49	1	11	439	95852.1
1059	202010	122	2.6	8192	15.6	82.94	1	11	269	197613.7
1060	202010	123	1.8	8192	15.6	20.74	1	11	166	116040.5
1061	202010	124	1.8	8192	15.6	20.74	1	11	695	136898.1
1062	202010	125	1.8	8192	15.6	20.74	1	11	230	123911.2
1063	202010	139	2.4	8192	13.3	40.96	0	10	695	152072.4
1064	202010	141	2.4	8192	13.3	40.96	0	10	140	168863.6
1065	202010	146	1.4	8192	13.3	40.96	0	10	1181	106733.3
1066	202010	147	1.4	8192	13.3	40.96	0	10	2317	134835.1
1067	202010	149	1.4	8192	13.3	40.96	0	10	668	141720.8
1068	202010	156	1.1	8192	13.3	40.96	0	10	1441	132213.9
1069	202010	157	1.1	8192	13.3	40.96	0	10	1142	131847.6
1070	202010	158	1.1	8192	13.3	40.96	0	10	977	131486.9
1071	202010	159	1.1	8192	13.3	40.96	0	10	2558	103109.7
1072	202010	160	1.1	8192	13.3	40.96	0	10	2266	103045.4
1073	202010	161	1.1	8192	13.3	40.96	0	10	1891	102906.4
1074	202010	162	2.6	16384	16	58.98	0	10	416	242357.3
1075	202010	163	2.3	16384	16	58.98	0	10	493	286149.7
1076	202010	164	2.6	16384	16	58.98	0	10	252	245281.7
1077	202010	165	2.3	16384	16	58.98	0	10	190	280541.8
1078	202010	166	2	16384	13.3	40.96	0	10	2007	185838.8
1079	202010	167	2	16384	13.3	40.96	0	10	804	206081.4
1080	202010	168	2	16384	13.3	40.96	0	10	973	185263.7
1081	202010	169	2	16384	13.3	40.96	0	10	469	206062.4
1082	202010	170	1.4	8192	13.3	40.96	0	10	2332	132319.9
1083	202010	171	1.4	8192	13.3	40.96	0	10	792	151608

1084	202010	172	1.4	8192	13.3	40.96	0	10	1198	132547.2
1085	202010	173	1.4	8192	13.3	40.96	0	10	411	151116
1086	202010	175	1.6	8192	15.6	20.74	1	5	184	82264.8
1087	202010	200	1.8	4096	15.6	10.49	1	12	856	87576.3
1088	202010	201	1.8	4096	15.6	10.49	1	12	421	89456.2
1089	202010	202	1.8	4096	15.6	10.49	1	12	254	87032.3
1090	202010	206	1.6	8192	13.3	20.74	1	12	113	115704.8
1091	202010	210	1.8	8192	14	20.74	1	12	690	118223.7
1092	202010	211	1.8	8192	14	20.74	1	12	298	121942.6
1093	202010	212	2.1	4096	14	20.74	1	12	2415	105311.8
1094	202010	213	2.6	8192	15.6	82.94	0	12	132	183821.2
1095	202010	215	2.3	8192	15.6	20.74	1	12	232	117460.3
1096	202010	217	2.3	8192	15.6	20.74	1	12	135	125435.1
1097	202010	218	1.2	8192	12.5	20.74	1	12	201	138221.1
1098	202010	219	1.2	8192	12.5	20.74	1	12	112	151290
1099	202010	221	1	8192	12.5	20.74	1	12	178	128441.6
1100	202010	224	1.5	4096	12.5	20.74	1	12	118	95429.2
1101	202010	227	2	8192	15.6	20.74	1	12	1990	134565.8
1102	202010	251	2.6	8192	15.6	20.74	1	9	223	102519.3
1103	202010	253	2.3	8192	15.6	20.74	1	9	1134	89281.4
1104	202010	258	2.1	8192	13.3	20.74	1	9	185	85644.5
1105	202010	259	1.6	8192	13.3	20.74	1	9	130	90203.4
1106	202010	267	2.6	8192	15.6	20.74	1	9	549	77691.7
1107	202010	268	2.1	8192	13.3	40.96	0	9	181	96816.5
1108	202010	269	2.3	8192	13.3	40.96	0	9	215	109575.6
1109	202010	270	1.9	4096	15.6	10.49	1	9	260	61727.2
1110	202010	271	1.9	4096	15.6	10.49	1	9	1138	60087.1
1111	202010	272	1.9	4096	15.6	10.49	1	9	965	60626.4
1112	202010	275	1.9	4096	15.6	10.49	1	9	394	67835.3
1113	202010	277	2.1	4096	15.6	20.74	1	9	307	73476.3
1114	202010	279	1.8	8192	15.6	20.74	1	9	458	111094.2
1115	202010	280	1.6	8192	15.6	20.74	1	9	622	102325
1116	202010	354	1.8	8192	15.6	20.74	1	8	946	137227.6
1117	202010	355	1.6	8192	13.3	20.74	1	8	282	146743.8
1118	202010	356	1.6	8192	13.3	20.74	1	8	367	152729.3

1119	202010	357	1.8	8192	15.6	20.74	1	8	384	129001.8
1120	202010	358	1.8	8192	15.6	20.74	1	8	351	121813
1121	202010	364	1.6	8192	15.6	20.74	1	8	182	113246.8
1122	202010	365	1.8	4096	13.3	20.74	1	8	207	125686.8
1123	202010	366	1.8	4096	13.3	20.74	1	8	245	117391.7
1124	202011	49	1.6	8192	15.6	20.74	1	7	398	95938.9
1125	202011	93	2.2	4096	13.3	20.74	1	8	100	92488.9
1126	202011	97	1.8	4096	14	10.49	1	11	190	39852.6
1127	202011	111	1.5	4096	13.3	20.74	1	11	510	117247.1
1128	202011	112	2.6	8192	17.3	20.74	1	11	234	145418.6
1129	202011	116	2.6	8192	15.6	20.74	1	11	251	134863.4
1130	202011	117	1.8	8192	13.3	20.74	1	11	1895	148029.4
1131	202011	118	1.6	8192	13.3	20.74	1	11	252	133579.2
1132	202011	119	1.8	8192	13.3	20.74	1	11	109	163107.2
1133	202011	120	1.8	4096	15.6	10.49	1	11	750	109561
1134	202011	121	1.8	4096	15.6	10.49	1	11	258	82241.9
1135	202011	122	2.6	8192	15.6	82.94	1	11	341	193549.7
1136	202011	124	1.8	8192	15.6	20.74	1	11	589	133149.6
1137	202011	125	1.8	8192	15.6	20.74	1	11	188	121473.6
1138	202011	146	1.4	8192	13.3	40.96	0	10	112	98713.2
1139	202011	147	1.4	8192	13.3	40.96	0	10	185	103589.6
1140	202011	156	1.1	8192	13.3	40.96	0	10	834	125475.5
1141	202011	157	1.1	8192	13.3	40.96	0	10	720	125119.8
1142	202011	158	1.1	8192	13.3	40.96	0	10	685	125188.9
1143	202011	159	1.1	8192	13.3	40.96	0	10	1510	99660.6
1144	202011	160	1.1	8192	13.3	40.96	0	10	1461	99222.8
1145	202011	161	1.1	8192	13.3	40.96	0	10	1143	97955.7
1146	202011	162	2.6	16384	16	58.98	0	10	253	242677.9
1147	202011	163	2.3	16384	16	58.98	0	10	257	282834.2
1148	202011	164	2.6	16384	16	58.98	0	10	243	242264.3
1149	202011	165	2.3	16384	16	58.98	0	10	170	280878.9
1150	202011	166	2	16384	13.3	40.96	0	10	1054	185122.1
1151	202011	167	2	16384	13.3	40.96	0	10	670	204329.3
1152	202011	168	2	16384	13.3	40.96	0	10	598	184655.9
1153	202011	169	2	16384	13.3	40.96	0	10	398	206615.3

1154	202011	170	1.4	8192	13.3	40.96	0	10	788	127958.9
1155	202011	171	1.4	8192	13.3	40.96	0	10	512	146204.8
1156	202011	172	1.4	8192	13.3	40.96	0	10	697	129462
1157	202011	173	1.4	8192	13.3	40.96	0	10	184	145159.4
1158	202011	175	1.6	8192	15.6	20.74	1	5	232	79972.3
1159	202011	200	1.8	4096	15.6	10.49	1	12	308	81019.5
1160	202011	201	1.8	4096	15.6	10.49	1	12	172	88146.1
1161	202011	202	1.8	4096	15.6	10.49	1	12	113	81006.1
1162	202011	210	1.8	8192	14	20.74	1	12	764	119722.5
1163	202011	211	1.8	8192	14	20.74	1	12	366	122385.9
1164	202011	212	2.1	4096	14	20.74	1	12	2497	104305
1165	202011	213	2.6	8192	15.6	82.94	0	12	106	188826.3
1166	202011	215	2.3	8192	15.6	20.74	1	12	157	112916.6
1167	202011	218	1.2	8192	12.5	20.74	1	12	192	136411.3
1168	202011	219	1.2	8192	12.5	20.74	1	12	127	145885.4
1169	202011	220	1.2	8192	12.5	20.74	1	12	108	148703.2
1170	202011	221	1	8192	12.5	20.74	1	12	214	127708.3
1171	202011	224	1.5	4096	12.5	20.74	1	12	128	92721.9
1172	202011	227	2	8192	15.6	20.74	1	12	3019	131922
1173	202011	251	2.6	8192	15.6	20.74	1	9	168	105502
1174	202011	253	2.3	8192	15.6	20.74	1	9	1202	84978.9
1175	202011	258	2.1	8192	13.3	20.74	1	9	131	85337.1
1176	202011	259	1.6	8192	13.3	20.74	1	9	148	90183
1177	202011	267	2.6	8192	15.6	20.74	1	9	507	75716
1178	202011	268	2.1	8192	13.3	40.96	0	9	119	91760.8
1179	202011	269	2.3	8192	13.3	40.96	0	9	161	105816.1
1180	202011	270	1.9	4096	15.6	10.49	1	9	354	61323.9
1181	202011	271	1.9	4096	15.6	10.49	1	9	1281	59229.1
1182	202011	272	1.9	4096	15.6	10.49	1	9	886	60343.2
1183	202011	275	1.9	4096	15.6	10.49	1	9	318	68889.6
1184	202011	277	2.1	4096	15.6	20.74	1	9	271	68969
1185	202011	279	1.8	8192	15.6	20.74	1	9	414	109835.6
1186	202011	280	1.6	8192	15.6	20.74	1	9	698	99763.8
1187	202011	354	1.8	8192	15.6	20.74	1	8	873	134955.8
1188	202011	355	1.6	8192	13.3	20.74	1	8	364	141521.9

1189	202011	356	1.6	8192	13.3	20.74	1	8	493	144915.3
1190	202011	357	1.8	8192	15.6	20.74	1	8	360	126976.4
1191	202011	358	1.8	8192	15.6	20.74	1	8	432	115988.8
1192	202011	364	1.6	8192	15.6	20.74	1	8	246	79893.4
1193	202011	365	1.8	4096	13.3	20.74	1	8	191	125867
1194	202011	366	1.8	4096	13.3	20.74	1	8	184	123421.6
1195	202012	48	2.3	4096	15.6	20.74	1	7	168	34533.2
1196	202012	49	1.6	8192	15.6	20.74	1	7	1840	86326.3
1197	202012	59	2.4	8192	15.6	20.74	1	4	103	72858.5
1198	202012	93	2.2	4096	13.3	20.74	1	8	108	91751.8
1199	202012	97	1.8	4096	14	10.49	1	11	281	39587.9
1200	202012	111	1.5	4096	13.3	20.74	1	11	671	112212.2
1201	202012	112	2.6	8192	17.3	20.74	1	11	172	144779.6
1202	202012	116	2.6	8192	15.6	20.74	1	11	116	127852.6
1203	202012	117	1.8	8192	13.3	20.74	1	11	2428	144310.9
1204	202012	118	1.6	8192	13.3	20.74	1	11	296	129367.1
1205	202012	119	1.8	8192	13.3	20.74	1	11	113	161223.2
1206	202012	120	1.8	4096	15.6	10.49	1	11	714	107759.5
1207	202012	121	1.8	4096	15.6	10.49	1	11	144	74103.9
1208	202012	122	2.6	8192	15.6	82.94	1	11	504	179558.2
1209	202012	124	1.8	8192	15.6	20.74	1	11	530	137585.9
1210	202012	156	1.1	8192	13.3	40.96	0	10	518	116648.4
1211	202012	157	1.1	8192	13.3	40.96	0	10	523	114572.2
1212	202012	158	1.1	8192	13.3	40.96	0	10	457	113759.9
1213	202012	159	1.1	8192	13.3	40.96	0	10	1106	93586.5
1214	202012	160	1.1	8192	13.3	40.96	0	10	1072	92479.6
1215	202012	161	1.1	8192	13.3	40.96	0	10	1072	91653.7
1216	202012	162	2.6	16384	16	58.98	0	10	128	240939
1217	202012	163	2.3	16384	16	58.98	0	10	309	285032.3
1218	202012	164	2.6	16384	16	58.98	0	10	341	244784.6
1219	202012	165	2.3	16384	16	58.98	0	10	137	276403.8
1220	202012	166	2	16384	13.3	40.96	0	10	683	185089.3
1221	202012	167	2	16384	13.3	40.96	0	10	373	207375.1
1222	202012	168	2	16384	13.3	40.96	0	10	356	185388.9
1223	202012	169	2	16384	13.3	40.96	0	10	244	204528.8

1224	202012	170	1.4	8192	13.3	40.96	0	10	376	114380.1
1225	202012	171	1.4	8192	13.3	40.96	0	10	286	135268.3
1226	202012	172	1.4	8192	13.3	40.96	0	10	262	119962.6
1227	202012	173	1.4	8192	13.3	40.96	0	10	141	132210.9
1228	202012	175	1.6	8192	15.6	20.74	1	5	212	79772.8
1229	202012	200	1.8	4096	15.6	10.49	1	12	186	76473.3
1230	202012	201	1.8	4096	15.6	10.49	1	12	157	87548.2
1231	202012	202	1.8	4096	15.6	10.49	1	12	180	77050.4
1232	202012	210	1.8	8192	14	20.74	1	12	1131	118006.2
1233	202012	211	1.8	8192	14	20.74	1	12	459	121702.1
1234	202012	212	2.1	4096	14	20.74	1	12	3282	103384.5
1235	202012	213	2.6	8192	15.6	82.94	0	12	225	185911.3
1236	202012	215	2.3	8192	15.6	20.74	1	12	109	114436.1
1237	202012	218	1.2	8192	12.5	20.74	1	12	542	121960.1
1238	202012	219	1.2	8192	12.5	20.74	1	12	345	135049.6
1239	202012	220	1.2	8192	12.5	20.74	1	12	288	134879.7
1240	202012	221	1	8192	12.5	20.74	1	12	551	113652.6
1241	202012	224	1.5	4096	12.5	20.74	1	12	207	84285
1242	202012	227	2	8192	15.6	20.74	1	12	3720	129484.9
1243	202012	251	2.6	8192	15.6	20.74	1	9	194	100896.8
1244	202012	253	2.3	8192	15.6	20.74	1	9	352	84282.3
1245	202012	258	2.1	8192	13.3	20.74	1	9	273	81325.2
1246	202012	259	1.6	8192	13.3	20.74	1	9	138	89664.3
1247	202012	263	2.1	8192	15.6	20.74	1	9	105	57969.9
1248	202012	264	2.1	8192	15.6	20.74	1	9	134	58403.6
1249	202012	265	2.1	8192	15.6	20.74	1	9	120	56539.3
1250	202012	267	2.6	8192	15.6	20.74	1	9	1041	72809.4
1251	202012	268	2.1	8192	13.3	40.96	0	9	105	91359.7
1252	202012	269	2.3	8192	13.3	40.96	0	9	169	97942.5
1253	202012	270	1.9	4096	15.6	10.49	1	9	548	60387.9
1254	202012	271	1.9	4096	15.6	10.49	1	9	1677	57992.9
1255	202012	272	1.9	4096	15.6	10.49	1	9	1975	56809.6
1256	202012	275	1.9	4096	15.6	10.49	1	9	270	66179.3
1257	202012	277	2.1	4096	15.6	20.74	1	9	235	69892.7
1258	202012	279	1.8	8192	15.6	20.74	1	9	644	106282

1259	202012	280	1.6	8192	15.6	20.74	1	9	776	96172.5
1260	202012	354	1.8	8192	15.6	20.74	1	8	1444	130461.1
1261	202012	355	1.6	8192	13.3	20.74	1	8	621	122055.8
1262	202012	356	1.6	8192	13.3	20.74	1	8	659	139874.7
1263	202012	357	1.8	8192	15.6	20.74	1	8	442	121744.1
1264	202012	358	1.8	8192	15.6	20.74	1	8	427	110245.2
1265	202012	365	1.8	4096	13.3	20.74	1	8	444	120072.6
1266	202012	366	1.8	4096	13.3	20.74	1	8	298	112831.2
1267	202101	1	1.1	4096	11.6	10.49	0	6	1141	20842
1268	202101	4	1.1	8192	15.6	20.74	1	6	114	33778.6
1269	202101	5	1.8	8192	15.6	20.74	1	6	211	74580.3
1270	202101	6	2.1	8192	15.6	20.74	1	6	446	57003.7
1271	202101	7	2.1	8192	15.6	20.74	1	6	212	59045.2
1272	202101	9	1.1	4096	15.6	10.49	1	6	592	38553.8
1273	202101	10	2.3	8192	15.6	20.74	1	6	298	72884.9
1274	202101	11	2.3	8192	15.6	20.74	1	6	1933	84997
1275	202101	12	1.3	16384	15.6	20.74	1	6	1894	94776
1276	202101	13	1.1	4096	11.6	10.49	1	6	1320	26888.8
1277	202101	14	1.1	4096	11.6	10.49	1	6	310	25801.5
1278	202101	15	1.1	4096	11.6	10.49	1	6	650	25816.3
1279	202101	16	2.5	8192	15.6	20.74	1	6	149	89759.9
1280	202101	18	2.9	8192	14	20.74	1	6	183	119347.7
1281	202101	19	2	8192	14	20.74	1	6	168	109992.1
1282	202101	20	2	8192	14	20.74	1	6	754	97302.5
1283	202101	21	2.6	8192	14	20.74	1	6	693	67293.8
1284	202101	23	2	8192	14	20.74	1	6	130	87821.7
1285	202101	24	2	8192	14	20.74	1	6	161	94290.2
1286	202101	25	2	16384	14	20.74	1	6	133	130157.9
1287	202101	35	1.2	8192	15.6	20.74	1	7	102	77952.5
1288	202101	37	1.1	4096	15.6	20.74	1	7	140	44365.9
1289	202101	39	1.1	4096	14	10.49	0	7	198	27081
1290	202101	40	1.1	4096	14	10.49	0	7	218	27257.4
1291	202101	49	1.6	8192	15.6	20.74	1	7	834	80062.7
1292	202101	60	2.6	16384	15.6	20.74	1	4	205	116314.4
1293	202101	61	2.8	16384	14	20.74	1	4	129	140275.1

1294	202101	97	1.8	4096	14	10.49	1	11	287	37012.8
1295	202101	111	1.5	4096	13.3	20.74	1	11	1807	96918.3
1296	202101	117	1.8	8192	13.3	20.74	1	11	2438	139033.4
1297	202101	118	1.6	8192	13.3	20.74	1	11	256	124392.9
1298	202101	120	1.8	4096	15.6	10.49	1	11	743	105454.8
1299	202101	122	2.6	8192	15.6	82.94	1	11	604	172172.6
1300	202101	124	1.8	8192	15.6	20.74	1	11	446	136647.4
1301	202101	156	1.1	8192	13.3	40.96	0	10	604	110716.6
1302	202101	157	1.1	8192	13.3	40.96	0	10	630	111624.3
1303	202101	158	1.1	8192	13.3	40.96	0	10	511	111432.5
1304	202101	159	1.1	8192	13.3	40.96	0	10	1485	87805.6
1305	202101	160	1.1	8192	13.3	40.96	0	10	1103	88784.4
1306	202101	161	1.1	8192	13.3	40.96	0	10	891	87945.7
1307	202101	162	2.6	16384	16	58.98	0	10	194	242949.3
1308	202101	163	2.3	16384	16	58.98	0	10	374	282140.3
1309	202101	164	2.6	16384	16	58.98	0	10	193	242030.2
1310	202101	165	2.3	16384	16	58.98	0	10	152	280769.2
1311	202101	166	2	16384	13.3	40.96	0	10	926	166189.6
1312	202101	167	2	16384	13.3	40.96	0	10	457	185330.9
1313	202101	168	2	16384	13.3	40.96	0	10	548	166679.7
1314	202101	169	2	16384	13.3	40.96	0	10	267	187033.3
1315	202101	170	1.4	8192	13.3	40.96	0	10	372	111763.8
1316	202101	171	1.4	8192	13.3	40.96	0	10	314	126183.6
1317	202101	172	1.4	8192	13.3	40.96	0	10	367	111594
1318	202101	173	1.4	8192	13.3	40.96	0	10	163	124762.3
1319	202101	175	1.6	8192	15.6	20.74	1	5	286	79833
1320	202101	200	1.8	4096	15.6	10.49	1	12	105	76571.8
1321	202101	201	1.8	4096	15.6	10.49	1	12	113	91248.3
1322	202101	210	1.8	8192	14	20.74	1	12	2287	111831.9
1323	202101	211	1.8	8192	14	20.74	1	12	583	116264.9
1324	202101	212	2.1	4096	14	20.74	1	12	3576	100267.4
1325	202101	213	2.6	8192	15.6	82.94	0	12	258	179365.5
1326	202101	214	2.3	8192	15.6	20.74	0	12	157	129776.4
1327	202101	218	1.2	8192	12.5	20.74	1	12	891	118782.6
1328	202101	219	1.2	8192	12.5	20.74	1	12	396	132370.5

1329	202101	220	1.2	8192	12.5	20.74	1	12	310	134644.3
1330	202101	221	1	8192	12.5	20.74	1	12	557	108725.6
1331	202101	222	1	8192	12.5	20.74	1	12	111	108081.5
1332	202101	224	1.5	4096	12.5	20.74	1	12	196	81283.4
1333	202101	227	2	8192	15.6	20.74	1	12	1915	130402.9
1334	202101	228	1.8	8192	13.3	20.74	1	12	1231	166434.1
1335	202101	229	1.6	8192	13.3	20.74	1	12	199	147876.4
1336	202101	230	1.6	8192	13.3	20.74	1	12	547	134844
1337	202101	251	2.6	8192	15.6	20.74	1	9	227	91312.2
1338	202101	253	2.3	8192	15.6	20.74	1	9	100	78221.4
1339	202101	258	2.1	8192	13.3	20.74	1	9	276	81435.3
1340	202101	259	1.6	8192	13.3	20.74	1	9	104	88988.8
1341	202101	260	1.6	8192	13.3	40.96	0	9	110	117939.2
1342	202101	264	2.1	8192	15.6	20.74	1	9	122	58637.4
1343	202101	265	2.1	8192	15.6	20.74	1	9	111	63171.1
1344	202101	266	2.6	4096	15.6	10.49	1	9	283	62387.3
1345	202101	267	2.6	8192	15.6	20.74	1	9	722	73190
1346	202101	268	2.1	8192	13.3	40.96	0	9	174	92853
1347	202101	269	2.3	8192	13.3	40.96	0	9	168	97109.9
1348	202101	270	1.9	4096	15.6	10.49	1	9	232	59439.9
1349	202101	271	1.9	4096	15.6	10.49	1	9	930	56147.3
1350	202101	272	1.9	4096	15.6	10.49	1	9	2110	55010
1351	202101	273	2.6	8192	15.6	20.74	1	9	458	126752.1
1352	202101	274	2.6	16384	15.6	20.74	1	9	205	148698.9
1353	202101	275	1.9	4096	15.6	10.49	1	9	158	67983
1354	202101	276	1.1	4096	11.6	10.49	0	9	370	26834
1355	202101	277	2.1	4096	15.6	20.74	1	9	179	67892.8
1356	202101	278	1.9	4096	13.3	20.74	0	9	675	51227.5
1357	202101	279	1.8	8192	15.6	20.74	1	9	440	104235.4
1358	202101	280	1.6	8192	15.6	20.74	1	9	538	93749.9
1359	202101	281	2.1	8192	13.3	40.96	0	9	121	107505.1
1360	202101	282	1.8	8192	13.3	40.96	0	9	209	114431
1361	202101	283	2	8192	14	20.74	1	9	120	119700.8
1362	202101	288	2.6	8192	17.3	20.74	1	11	908	179792.9
1363	202101	289	2.6	8192	17.3	20.74	1	11	567	174026

1364	202101	290	1.8	8192	15.6	20.74	1	11	638	150634.3
1365	202101	291	1.8	8192	15.6	20.74	1	11	930	157024.3
1366	202101	292	1.8	8192	15.6	20.74	1	11	232	160101.8
1367	202101	294	1.8	8192	15.6	20.74	1	11	2335	128659.2
1368	202101	295	1.8	8192	13.3	20.74	1	11	113	169628.7
1369	202101	296	2	8192	17.3	20.74	1	11	138	136255
1370	202101	298	2	8192	13.3	20.74	1	11	158	163461.1
1371	202101	305	2.8	8192	14	20.74	1	12	127	158767.8
1372	202101	331	1.9	4096	15.6	20.74	1	8	270	82036.7
1373	202101	332	1.8	8192	15.6	20.74	1	8	2740	108703.6
1374	202101	333	1.6	8192	15.6	20.74	1	8	1577	100968.9
1375	202101	334	2.1	4096	15.6	20.74	1	8	419	100374.5
1376	202101	335	2.4	8192	13.3	20.74	1	8	217	162986.3
1377	202101	337	2.8	8192	15.6	20.74	1	8	248	132834
1378	202101	338	2.8	8192	15.6	20.74	1	8	494	134459.5
1379	202101	339	2.8	8192	15.6	20.74	1	8	1116	127445.4
1380	202101	340	2.8	16384	13.3	20.74	1	8	156	211118.9
1381	202101	341	2.4	8192	13.3	20.74	1	8	296	186766.4
1382	202101	343	2.4	8192	15.6	20.74	1	8	130	148148.5
1383	202101	346	2.4	8192	15.6	20.74	1	8	110	108619.3
1384	202101	354	1.8	8192	15.6	20.74	1	8	1997	122169.8
1385	202101	355	1.6	8192	13.3	20.74	1	8	538	117016.9
1386	202101	356	1.6	8192	13.3	20.74	1	8	962	137459.8
1387	202101	357	1.8	8192	15.6	20.74	1	8	490	120365
1388	202101	358	1.8	8192	15.6	20.74	1	8	261	105333.7
1389	202101	365	1.8	4096	13.3	20.74	1	8	657	117258.2
1390	202101	366	1.8	4096	13.3	20.74	1	8	585	110580.8
1391	202102	1	1.1	4096	11.6	10.49	0	6	1394	20685.9
1392	202102	3	1.1	4096	14	20.74	0	6	218	44919.4
1393	202102	4	1.1	8192	15.6	20.74	1	6	127	32143.2
1394	202102	5	1.8	8192	15.6	20.74	1	6	137	78652.7
1395	202102	6	2.1	8192	15.6	20.74	1	6	103	57057
1396	202102	8	1.8	8192	15.6	20.74	1	6	104	77329.9
1397	202102	9	1.1	4096	15.6	10.49	1	6	655	35035.2
1398	202102	10	2.3	8192	15.6	20.74	1	6	211	73872.9

1399	202102	11	2.3	8192	15.6	20.74	1	6	1846	85986
1400	202102	12	1.3	16384	15.6	20.74	1	6	484	100366.9
1401	202102	13	1.1	4096	11.6	10.49	1	6	1604	25556.2
1402	202102	14	1.1	4096	11.6	10.49	1	6	278	24257.8
1403	202102	15	1.1	4096	11.6	10.49	1	6	635	23571.2
1404	202102	19	2	8192	14	20.74	1	6	130	111126.1
1405	202102	20	2	8192	14	20.74	1	6	810	98268.8
1406	202102	21	2.6	8192	14	20.74	1	6	738	67483.4
1407	202102	23	2	8192	14	20.74	1	6	134	87354.3
1408	202102	24	2	8192	14	20.74	1	6	204	90916.7
1409	202102	25	2	16384	14	20.74	1	6	172	130175.9
1410	202102	35	1.2	8192	15.6	20.74	1	7	230	78901.1
1411	202102	39	1.1	4096	14	10.49	0	7	183	26606.4
1412	202102	49	1.6	8192	15.6	20.74	1	7	174	85675.6
1413	202102	60	2.6	16384	15.6	20.74	1	4	145	115363
1414	202102	61	2.8	16384	14	20.74	1	4	161	142793.5
1415	202102	62	2.6	16384	17.3	20.74	1	4	189	172325.6
1416	202102	97	1.8	4096	14	10.49	1	11	230	35307.9
1417	202102	111	1.5	4096	13.3	20.74	1	11	1040	96920.3
1418	202102	117	1.8	8192	13.3	20.74	1	11	1599	136558.7
1419	202102	118	1.6	8192	13.3	20.74	1	11	336	116844.9
1420	202102	119	1.8	8192	13.3	20.74	1	11	101	149889.8
1421	202102	120	1.8	4096	15.6	10.49	1	11	296	102805.1
1422	202102	122	2.6	8192	15.6	82.94	1	11	654	156688.5
1423	202102	124	1.8	8192	15.6	20.74	1	11	398	136534.6
1424	202102	156	1.1	8192	13.3	40.96	0	10	524	107128.8
1425	202102	157	1.1	8192	13.3	40.96	0	10	546	106135.7
1426	202102	158	1.1	8192	13.3	40.96	0	10	405	106559.2
1427	202102	159	1.1	8192	13.3	40.96	0	10	1167	85064.7
1428	202102	160	1.1	8192	13.3	40.96	0	10	931	85549.6
1429	202102	161	1.1	8192	13.3	40.96	0	10	660	85216.2
1430	202102	162	2.6	16384	16	58.98	0	10	282	244765
1431	202102	163	2.3	16384	16	58.98	0	10	291	282510.8
1432	202102	164	2.6	16384	16	58.98	0	10	156	245578.9
1433	202102	165	2.3	16384	16	58.98	0	10	150	287287

1434	202102	166	2	16384	13.3	40.96	0	10	609	179762
1435	202102	167	2	16384	13.3	40.96	0	10	285	199699.6
1436	202102	168	2	16384	13.3	40.96	0	10	293	180081.4
1437	202102	169	2	16384	13.3	40.96	0	10	202	197271.1
1438	202102	170	1.4	8192	13.3	40.96	0	10	599	100337
1439	202102	171	1.4	8192	13.3	40.96	0	10	357	118162.1
1440	202102	172	1.4	8192	13.3	40.96	0	10	511	99115.3
1441	202102	173	1.4	8192	13.3	40.96	0	10	111	119206.3
1442	202102	175	1.6	8192	15.6	20.74	1	5	134	80651.3
1443	202102	210	1.8	8192	14	20.74	1	12	2482	109848.1
1444	202102	211	1.8	8192	14	20.74	1	12	735	112345.4
1445	202102	212	2.1	4096	14	20.74	1	12	2756	92755.6
1446	202102	213	2.6	8192	15.6	82.94	0	12	229	176084.7
1447	202102	214	2.3	8192	15.6	20.74	0	12	204	133621.4
1448	202102	218	1.2	8192	12.5	20.74	1	12	1155	115131.3
1449	202102	219	1.2	8192	12.5	20.74	1	12	361	129480.6
1450	202102	220	1.2	8192	12.5	20.74	1	12	372	130846.6
1451	202102	221	1	8192	12.5	20.74	1	12	561	103726.4
1452	202102	222	1	8192	12.5	20.74	1	12	180	100574.9
1453	202102	224	1.5	4096	12.5	20.74	1	12	247	75421.7
1454	202102	227	2	8192	15.6	20.74	1	12	1353	141419.6
1455	202102	228	1.8	8192	13.3	20.74	1	12	1613	158979.2
1456	202102	229	1.6	8192	13.3	20.74	1	12	240	143040.8
1457	202102	230	1.6	8192	13.3	20.74	1	12	690	139859.6
1458	202102	233	1.2	8192	15.6	20.74	1	5	136	74277.3
1459	202102	234	1	8192	15.6	20.74	1	5	241	83918.7
1460	202102	251	2.6	8192	15.6	20.74	1	9	132	88973.2
1461	202102	253	2.3	8192	15.6	20.74	1	9	190	82114.2
1462	202102	258	2.1	8192	13.3	20.74	1	9	317	81022.5
1463	202102	259	1.6	8192	13.3	20.74	1	9	138	91365.7
1464	202102	260	1.6	8192	13.3	40.96	0	9	141	113940.8
1465	202102	261	2.1	8192	13.3	20.74	1	9	107	78579.3
1466	202102	263	2.1	8192	15.6	20.74	1	9	161	59423.8
1467	202102	264	2.1	8192	15.6	20.74	1	9	134	58819.6
1468	202102	265	2.1	8192	15.6	20.74	1	9	218	60372.8

1469	202102	266	2.6	4096	15.6	10.49	1	9	160	61767.5
1470	202102	267	2.6	8192	15.6	20.74	1	9	398	74601.2
1471	202102	268	2.1	8192	13.3	40.96	0	9	106	90320.9
1472	202102	269	2.3	8192	13.3	40.96	0	9	216	95444.3
1473	202102	270	1.9	4096	15.6	10.49	1	9	270	60839.8
1474	202102	271	1.9	4096	15.6	10.49	1	9	882	57956.3
1475	202102	272	1.9	4096	15.6	10.49	1	9	1537	56143.7
1476	202102	273	2.6	8192	15.6	20.74	1	9	489	119617.1
1477	202102	274	2.6	16384	15.6	20.74	1	9	233	140804.7
1478	202102	275	1.9	4096	15.6	10.49	1	9	258	67144
1479	202102	276	1.1	4096	11.6	10.49	0	9	238	26725.8
1480	202102	277	2.1	4096	15.6	20.74	1	9	126	69845.4
1481	202102	278	1.9	4096	13.3	20.74	0	9	506	49879.1
1482	202102	279	1.8	8192	15.6	20.74	1	9	464	106775.6
1483	202102	280	1.6	8192	15.6	20.74	1	9	634	97002
1484	202102	281	2.1	8192	13.3	40.96	0	9	281	106467.8
1485	202102	282	1.8	8192	13.3	40.96	0	9	350	113816.5
1486	202102	283	2	8192	14	20.74	1	9	242	110888.4
1487	202102	284	2.4	8192	13.3	40.96	0	9	110	133261.2
1488	202102	285	2.1	8192	15.6	20.74	1	9	1123	64737.2
1489	202102	286	1.8	8192	14	20.74	1	9	170	123406.6
1490	202102	288	2.6	8192	17.3	20.74	1	11	618	181227.4
1491	202102	289	2.6	8192	17.3	20.74	1	11	428	177565.5
1492	202102	290	1.8	8192	15.6	20.74	1	11	557	148766
1493	202102	291	1.8	8192	15.6	20.74	1	11	613	149146.6
1494	202102	292	1.8	8192	15.6	20.74	1	11	280	149097.8
1495	202102	293	1.8	8192	15.6	20.74	1	11	3072	130081.1
1496	202102	294	1.8	8192	15.6	20.74	1	11	638	127089.1
1497	202102	295	1.8	8192	13.3	20.74	1	11	103	165043.5
1498	202102	296	2	8192	17.3	20.74	1	11	256	144972
1499	202102	298	2	8192	13.3	20.74	1	11	408	160466.8
1500	202102	305	2.8	8192	14	20.74	1	12	614	155409.3
1501	202102	306	2.6	8192	14	20.74	1	12	359	126336.5
1502	202102	307	2.8	8192	13.3	20.74	1	12	464	187236
1503	202102	308	2.4	8192	13.3	20.74	1	12	197	171395

1504	202102	331	1.9	4096	15.6	20.74	1	8	535	77347.7
1505	202102	332	1.8	8192	15.6	20.74	1	8	2491	108991.1
1506	202102	333	1.6	8192	15.6	20.74	1	8	1430	97854.3
1507	202102	334	2.1	4096	15.6	20.74	1	8	639	95334.9
1508	202102	335	2.4	8192	13.3	20.74	1	8	469	160213.6
1509	202102	337	2.8	8192	15.6	20.74	1	8	346	129461.6
1510	202102	338	2.8	8192	15.6	20.74	1	8	692	131053.7
1511	202102	339	2.8	8192	15.6	20.74	1	8	1526	125631.9
1512	202102	340	2.8	16384	13.3	20.74	1	8	176	207161.2
1513	202102	341	2.4	8192	13.3	20.74	1	8	333	183086.4
1514	202102	343	2.4	8192	15.6	20.74	1	8	180	151284.7
1515	202102	344	1.8	4096	13.3	20.74	1	8	124	132505.8
1516	202102	345	1.8	4096	13.3	20.74	1	8	258	121829.5
1517	202102	346	2.4	8192	15.6	20.74	1	8	347	106391.2
1518	202102	347	2.4	8192	15.6	20.74	1	8	346	113205.9
1519	202102	349	2.8	8192	16.1	20.74	1	8	139	150038
1520	202102	354	1.8	8192	15.6	20.74	1	8	883	123236.3
1521	202102	355	1.6	8192	13.3	20.74	1	8	146	116628.3
1522	202102	356	1.6	8192	13.3	20.74	1	8	742	134977
1523	202102	357	1.8	8192	15.6	20.74	1	8	457	114497.1
1524	202102	358	1.8	8192	15.6	20.74	1	8	131	105291.1
1525	202102	365	1.8	4096	13.3	20.74	1	8	614	111400.7
1526	202102	366	1.8	4096	13.3	20.74	1	8	343	95552.8
1527	202103	1	1.1	4096	11.6	10.49	0	6	3129	18128.2
1528	202103	2	1.1	4096	14	20.74	0	6	1813	20589.4
1529	202103	3	1.1	4096	14	20.74	0	6	601	40120.2
1530	202103	4	1.1	8192	15.6	20.74	1	6	208	32202.7
1531	202103	6	2.1	8192	15.6	20.74	1	6	165	62661.7
1532	202103	7	2.1	8192	15.6	20.74	1	6	145	61021.5
1533	202103	9	1.1	4096	15.6	10.49	1	6	902	29634.1
1534	202103	10	2.3	8192	15.6	20.74	1	6	269	71683.2
1535	202103	11	2.3	8192	15.6	20.74	1	6	2510	84326.9
1536	202103	12	1.3	16384	15.6	20.74	1	6	1926	90081
1537	202103	13	1.1	4096	11.6	10.49	1	6	1234	27129.2
1538	202103	14	1.1	4096	11.6	10.49	1	6	168	27061.2

1539	202103	15	1.1	4096	11.6	10.49	1	6	196	25971.1
1540	202103	16	2.5	8192	15.6	20.74	1	6	136	86928.2
1541	202103	18	2.9	8192	14	20.74	1	6	214	111944.6
1542	202103	19	2	8192	14	20.74	1	6	608	109755
1543	202103	20	2	8192	14	20.74	1	6	1951	101009.9
1544	202103	21	2.6	8192	14	20.74	1	6	1056	67531.3
1545	202103	22	2.7	8192	14	20.74	1	6	256	68781.3
1546	202103	23	2	8192	14	20.74	1	6	463	88716.7
1547	202103	24	2	8192	14	20.74	1	6	546	89612.9
1548	202103	25	2	16384	14	20.74	1	6	501	130187.4
1549	202103	35	1.2	8192	15.6	20.74	1	7	342	77384.1
1550	202103	36	1	8192	15.6	20.74	1	7	101	70048.1
1551	202103	39	1.1	4096	14	10.49	0	7	339	24439.6
1552	202103	49	1.6	8192	15.6	20.74	1	7	136	87181.4
1553	202103	58	1.1	16384	14	20.74	0	4	235	121703.5
1554	202103	60	2.6	16384	15.6	20.74	1	4	221	107521.7
1555	202103	61	2.8	16384	14	20.74	1	4	426	139587.9
1556	202103	62	2.6	16384	17.3	20.74	1	4	275	167815.3
1557	202103	79	1.6	8192	14	20.74	0	5	125	79061.6
1558	202103	93	2.2	4096	13.3	20.74	1	8	276	79774
1559	202103	94	2.2	4096	12.5	20.74	1	8	140	97308.5
1560	202103	97	1.8	4096	14	10.49	1	11	248	28787.3
1561	202103	111	1.5	4096	13.3	20.74	1	11	1119	98775.6
1562	202103	117	1.8	8192	13.3	20.74	1	11	1143	132943.9
1563	202103	118	1.6	8192	13.3	20.74	1	11	235	104316.6
1564	202103	120	1.8	4096	15.6	10.49	1	11	106	96647.8
1565	202103	122	2.6	8192	15.6	82.94	1	11	393	151014.9
1566	202103	124	1.8	8192	15.6	20.74	1	11	470	127527.4
1567	202103	156	1.1	8192	13.3	40.96	0	10	742	105283.2
1568	202103	157	1.1	8192	13.3	40.96	0	10	947	102073.5
1569	202103	158	1.1	8192	13.3	40.96	0	10	550	101840.5
1570	202103	159	1.1	8192	13.3	40.96	0	10	3534	84461.6
1571	202103	160	1.1	8192	13.3	40.96	0	10	1442	82614.3
1572	202103	161	1.1	8192	13.3	40.96	0	10	982	81015.2
1573	202103	162	2.6	16384	16	58.98	0	10	251	244795.6

1574	202103	163	2.3	16384	16	58.98	0	10	341	281596.3
1575	202103	164	2.6	16384	16	58.98	0	10	182	243718.1
1576	202103	165	2.3	16384	16	58.98	0	10	214	282417.9
1577	202103	166	2	16384	13.3	40.96	0	10	719	183577
1578	202103	167	2	16384	13.3	40.96	0	10	331	205876.5
1579	202103	168	2	16384	13.3	40.96	0	10	522	184395.7
1580	202103	169	2	16384	13.3	40.96	0	10	246	206108.7
1581	202103	170	1.4	8192	13.3	40.96	0	10	844	95488.7
1582	202103	171	1.4	8192	13.3	40.96	0	10	437	113743.3
1583	202103	172	1.4	8192	13.3	40.96	0	10	680	96800
1584	202103	173	1.4	8192	13.3	40.96	0	10	252	111066.9
1585	202103	175	1.6	8192	15.6	20.74	1	5	230	80467.1
1586	202103	210	1.8	8192	14	20.74	1	12	1394	107848.3
1587	202103	211	1.8	8192	14	20.74	1	12	765	112295.8
1588	202103	212	2.1	4096	14	20.74	1	12	3870	88138.7
1589	202103	213	2.6	8192	15.6	82.94	0	12	329	170771.7
1590	202103	218	1.2	8192	12.5	20.74	1	12	1798	102891.9
1591	202103	219	1.2	8192	12.5	20.74	1	12	300	118109.6
1592	202103	220	1.2	8192	12.5	20.74	1	12	617	128872.4
1593	202103	221	1	8192	12.5	20.74	1	12	843	98952.4
1594	202103	222	1	8192	12.5	20.74	1	12	111	103653.2
1595	202103	224	1.5	4096	12.5	20.74	1	12	431	66734
1596	202103	227	2	8192	15.6	20.74	1	12	4945	132956.7
1597	202103	228	1.8	8192	13.3	20.74	1	12	2981	152232
1598	202103	229	1.6	8192	13.3	20.74	1	12	806	133607
1599	202103	230	1.6	8192	13.3	20.74	1	12	1637	143317.3
1600	202103	233	1.2	8192	15.6	20.74	1	5	228	74956.3
1601	202103	234	1	8192	15.6	20.74	1	5	436	83567.5
1602	202103	251	2.6	8192	15.6	20.74	1	9	101	88093.2
1603	202103	253	2.3	8192	15.6	20.74	1	9	1693	85224
1604	202103	258	2.1	8192	13.3	20.74	1	9	534	77811.8
1605	202103	259	1.6	8192	13.3	20.74	1	9	132	92963.7
1606	202103	260	1.6	8192	13.3	40.96	0	9	515	111590.5
1607	202103	261	2.1	8192	13.3	20.74	1	9	187	79266.7
1608	202103	263	2.1	8192	15.6	20.74	1	9	142	62342.3

1609	202103	264	2.1	8192	15.6	20.74	1	9	301	61158.1
1610	202103	265	2.1	8192	15.6	20.74	1	9	105	63766.6
1611	202103	266	2.6	4096	15.6	10.49	1	9	168	62688.4
1612	202103	267	2.6	8192	15.6	20.74	1	9	341	74557.2
1613	202103	268	2.1	8192	13.3	40.96	0	9	121	92037.4
1614	202103	269	2.3	8192	13.3	40.96	0	9	252	93492.3
1615	202103	270	1.9	4096	15.6	10.49	1	9	290	61359.2
1616	202103	271	1.9	4096	15.6	10.49	1	9	1594	57608.5
1617	202103	272	1.9	4096	15.6	10.49	1	9	1602	55900.3
1618	202103	273	2.6	8192	15.6	20.74	1	9	558	118753.6
1619	202103	274	2.6	16384	15.6	20.74	1	9	356	142025.7
1620	202103	275	1.9	4096	15.6	10.49	1	9	234	68243.6
1621	202103	276	1.1	4096	11.6	10.49	0	9	736	23057.4
1622	202103	277	2.1	4096	15.6	20.74	1	9	108	68672.8
1623	202103	278	1.9	4096	13.3	20.74	0	9	1010	47272
1624	202103	279	1.8	8192	15.6	20.74	1	9	852	106784.3
1625	202103	280	1.6	8192	15.6	20.74	1	9	864	95818.7
1626	202103	281	2.1	8192	13.3	40.96	0	9	870	105905
1627	202103	282	1.8	8192	13.3	40.96	0	9	1138	113733
1628	202103	283	2	8192	14	20.74	1	9	314	109166.9
1629	202103	284	2.4	8192	13.3	40.96	0	9	386	133991.3
1630	202103	285	2.1	8192	15.6	20.74	1	9	462	67544
1631	202103	286	1.8	8192	14	20.74	1	9	564	122052.8
1632	202103	288	2.6	8192	17.3	20.74	1	11	910	178546.2
1633	202103	289	2.6	8192	17.3	20.74	1	11	578	169375
1634	202103	290	1.8	8192	15.6	20.74	1	11	476	149366.5
1635	202103	291	1.8	8192	15.6	20.74	1	11	404	147499.3
1636	202103	292	1.8	8192	15.6	20.74	1	11	182	145956.9
1637	202103	293	1.8	8192	15.6	20.74	1	11	2939	127281.8
1638	202103	294	1.8	8192	15.6	20.74	1	11	633	124982.1
1639	202103	295	1.8	8192	13.3	20.74	1	11	263	164236
1640	202103	296	2	8192	17.3	20.74	1	11	672	136336.7
1641	202103	297	2	8192	13.3	20.74	1	11	179	161893.6
1642	202103	298	2	8192	13.3	20.74	1	11	1851	159782
1643	202103	304	2.8	8192	14	20.74	1	12	195	151745.4

1644	202103	305	2.8	8192	14	20.74	1	12	2122	154105.5
1645	202103	306	2.6	8192	14	20.74	1	12	1177	124160
1646	202103	307	2.8	8192	13.3	20.74	1	12	1314	184108.8
1647	202103	308	2.4	8192	13.3	20.74	1	12	894	168780.1
1648	202103	309	2.1	8192	12.5	20.74	1	12	524	149059.4
1649	202103	310	2.1	8192	12.5	20.74	1	12	399	145023.1
1650	202103	311	1.8	8192	12.5	20.74	1	12	616	127937
1651	202103	312	1.8	8192	12.5	20.74	1	12	796	131393.5
1652	202103	331	1.9	4096	15.6	20.74	1	8	1119	70705.2
1653	202103	332	1.8	8192	15.6	20.74	1	8	943	98644.4
1654	202103	333	1.6	8192	15.6	20.74	1	8	1093	94125.1
1655	202103	334	2.1	4096	15.6	20.74	1	8	726	92166.2
1656	202103	335	2.4	8192	13.3	20.74	1	8	1728	163094.4
1657	202103	336	2.4	8192	13.3	20.74	1	8	1006	145950.4
1658	202103	337	2.8	8192	15.6	20.74	1	8	467	131260.6
1659	202103	338	2.8	8192	15.6	20.74	1	8	941	132899.2
1660	202103	339	2.8	8192	15.6	20.74	1	8	1756	125597.8
1661	202103	340	2.8	16384	13.3	20.74	1	8	247	204847.8
1662	202103	341	2.4	8192	13.3	20.74	1	8	815	185279.5
1663	202103	343	2.4	8192	15.6	20.74	1	8	226	156255.5
1664	202103	344	1.8	4096	13.3	20.74	1	8	548	139505.9
1665	202103	345	1.8	4096	13.3	20.74	1	8	865	123623.4
1666	202103	346	2.4	8192	15.6	20.74	1	8	484	106344.6
1667	202103	347	2.4	8192	15.6	20.74	1	8	720	112465.7
1668	202103	348	2.8	8192	16.1	20.74	1	8	218	155544.1
1669	202103	349	2.8	8192	16.1	20.74	1	8	335	150208.2
1670	202103	350	2.8	8192	15.6	20.74	1	8	656	129997.7
1671	202103	351	2.4	8192	15.6	20.74	1	8	619	113628.9
1672	202103	354	1.8	8192	15.6	20.74	1	8	647	118437.3
1673	202103	356	1.6	8192	13.3	20.74	1	8	776	124992.7
1674	202103	357	1.8	8192	15.6	20.74	1	8	342	100998.5
1675	202103	365	1.8	4096	13.3	20.74	1	8	1086	112841.8
1676	202103	366	1.8	4096	13.3	20.74	1	8	348	81310.8
1677	202104	1	1.1	4096	11.6	10.49	0	6	2362	19220
1678	202104	3	1.1	4096	14	20.74	0	6	494	39609.3

1679	202104	5	1.8	8192	15.6	20.74	1	6	177	85572.1
1680	202104	6	2.1	8192	15.6	20.74	1	6	185	63939.9
1681	202104	7	2.1	8192	15.6	20.74	1	6	153	62497.3
1682	202104	9	1.1	4096	15.6	10.49	1	6	618	30242
1683	202104	10	2.3	8192	15.6	20.74	1	6	187	70513.6
1684	202104	11	2.3	8192	15.6	20.74	1	6	1865	85568.7
1685	202104	12	1.3	16384	15.6	20.74	1	6	197	85806.9
1686	202104	13	1.1	4096	11.6	10.49	1	6	586	30171.6
1687	202104	16	2.5	8192	15.6	20.74	1	6	132	83883.7
1688	202104	17	2.5	8192	15.6	20.74	1	6	102	100137.9
1689	202104	19	2	8192	14	20.74	1	6	423	110184.5
1690	202104	20	2	8192	14	20.74	1	6	1341	101957
1691	202104	21	2.6	8192	14	20.74	1	6	1083	67193.8
1692	202104	22	2.7	8192	14	20.74	1	6	240	68367.1
1693	202104	23	2	8192	14	20.74	1	6	142	87054.9
1694	202104	24	2	8192	14	20.74	1	6	208	83824.8
1695	202104	25	2	16384	14	20.74	1	6	312	129987.2
1696	202104	35	1.2	8192	15.6	20.74	1	7	292	77258
1697	202104	36	1	8192	15.6	20.74	1	7	100	71964.6
1698	202104	39	1.1	4096	14	10.49	0	7	166	26386.7
1699	202104	40	1.1	4096	14	10.49	0	7	221	26872.9
1700	202104	58	1.1	16384	14	20.74	0	4	143	121100.3
1701	202104	60	2.6	16384	15.6	20.74	1	4	109	99418.9
1702	202104	61	2.8	16384	14	20.74	1	4	225	139903.3
1703	202104	62	2.6	16384	17.3	20.74	1	4	283	169058.9
1704	202104	63	2.6	16384	15.6	20.74	1	4	202	120195.8
1705	202104	79	1.6	8192	14	20.74	0	5	165	70270.4
1706	202104	80	2.1	8192	14	20.74	0	5	219	58177.5
1707	202104	97	1.8	4096	14	10.49	1	11	137	26791.6
1708	202104	111	1.5	4096	13.3	20.74	1	11	787	97793.1
1709	202104	112	2.6	8192	17.3	20.74	1	11	103	127248.5
1710	202104	117	1.8	8192	13.3	20.74	1	11	231	132284.6
1711	202104	122	2.6	8192	15.6	82.94	1	11	194	147185.8
1712	202104	124	1.8	8192	15.6	20.74	1	11	112	121936.5
1713	202104	156	1.1	8192	13.3	40.96	0	10	291	107276.7

1714	202104	157	1.1	8192	13.3	40.96	0	10	333	102005.1
1715	202104	158	1.1	8192	13.3	40.96	0	10	288	105166.5
1716	202104	159	1.1	8192	13.3	40.96	0	10	2319	85168
1717	202104	160	1.1	8192	13.3	40.96	0	10	661	84245.8
1718	202104	161	1.1	8192	13.3	40.96	0	10	505	84581.9
1719	202104	162	2.6	16384	16	58.98	0	10	167	244071.2
1720	202104	163	2.3	16384	16	58.98	0	10	298	283998
1721	202104	164	2.6	16384	16	58.98	0	10	153	245431.3
1722	202104	165	2.3	16384	16	58.98	0	10	143	281678.3
1723	202104	166	2	16384	13.3	40.96	0	10	535	184781.7
1724	202104	167	2	16384	13.3	40.96	0	10	241	205638.2
1725	202104	168	2	16384	13.3	40.96	0	10	292	186381.8
1726	202104	169	2	16384	13.3	40.96	0	10	165	205880.2
1727	202104	170	1.4	8192	13.3	40.96	0	10	256	99385.7
1728	202104	171	1.4	8192	13.3	40.96	0	10	154	115313
1729	202104	172	1.4	8192	13.3	40.96	0	10	178	99561
1730	202104	211	1.8	8192	14	20.74	1	12	117	107296.9
1731	202104	212	2.1	4096	14	20.74	1	12	1198	85441
1732	202104	213	2.6	8192	15.6	82.94	0	12	380	154076.6
1733	202104	218	1.2	8192	12.5	20.74	1	12	371	105186.4
1734	202104	220	1.2	8192	12.5	20.74	1	12	167	107221.1
1735	202104	221	1	8192	12.5	20.74	1	12	178	105167.6
1736	202104	224	1.5	4096	12.5	20.74	1	12	272	68379.1
1737	202104	227	2	8192	15.6	20.74	1	12	2262	135272.9
1738	202104	228	1.8	8192	13.3	20.74	1	12	586	148469.3
1739	202104	229	1.6	8192	13.3	20.74	1	12	289	135862.6
1740	202104	230	1.6	8192	13.3	20.74	1	12	270	138705.2
1741	202104	233	1.2	8192	15.6	20.74	1	5	282	74774.4
1742	202104	234	1	8192	15.6	20.74	1	5	377	83932.2
1743	202104	253	2.3	8192	15.6	20.74	1	9	1197	84935.3
1744	202104	258	2.1	8192	13.3	20.74	1	9	336	80005.8
1745	202104	259	1.6	8192	13.3	20.74	1	9	120	86200.8
1746	202104	260	1.6	8192	13.3	40.96	0	9	148	111388.6
1747	202104	261	2.1	8192	13.3	20.74	1	9	128	73484.9
1748	202104	266	2.6	4096	15.6	10.49	1	9	107	60699.5

1749	202104	267	2.6	8192	15.6	20.74	1	9	249	76510.9
1750	202104	270	1.9	4096	15.6	10.49	1	9	246	61010.1
1751	202104	271	1.9	4096	15.6	10.49	1	9	958	58507.8
1752	202104	272	1.9	4096	15.6	10.49	1	9	1094	56724
1753	202104	273	2.6	8192	15.6	20.74	1	9	383	119438.2
1754	202104	274	2.6	16384	15.6	20.74	1	9	287	142320.7
1755	202104	275	1.9	4096	15.6	10.49	1	9	176	71063.2
1756	202104	276	1.1	4096	11.6	10.49	0	9	319	25802
1757	202104	278	1.9	4096	13.3	20.74	0	9	811	50495.3
1758	202104	279	1.8	8192	15.6	20.74	1	9	700	106904.6
1759	202104	280	1.6	8192	15.6	20.74	1	9	326	95053.1
1760	202104	281	2.1	8192	13.3	40.96	0	9	501	105986.8
1761	202104	282	1.8	8192	13.3	40.96	0	9	919	113595.9
1762	202104	283	2	8192	14	20.74	1	9	122	108893.8
1763	202104	284	2.4	8192	13.3	40.96	0	9	231	133912.1
1764	202104	285	2.1	8192	15.6	20.74	1	9	208	79382.1
1765	202104	286	1.8	8192	14	20.74	1	9	730	123899.1
1766	202104	287	2.4	8192	15.6	20.74	1	9	302	100990.5
1767	202104	288	2.6	8192	17.3	20.74	1	11	586	178993.2
1768	202104	289	2.6	8192	17.3	20.74	1	11	519	168362.9
1769	202104	290	1.8	8192	15.6	20.74	1	11	345	149382.5
1770	202104	291	1.8	8192	15.6	20.74	1	11	193	147157.8
1771	202104	292	1.8	8192	15.6	20.74	1	11	233	141120.7
1772	202104	293	1.8	8192	15.6	20.74	1	11	582	126222.6
1773	202104	294	1.8	8192	15.6	20.74	1	11	276	123051.4
1774	202104	295	1.8	8192	13.3	20.74	1	11	124	162753.2
1775	202104	296	2	8192	17.3	20.74	1	11	600	136082.6
1776	202104	297	2	8192	13.3	20.74	1	11	182	164861.4
1777	202104	298	2	8192	13.3	20.74	1	11	1337	160433.9
1778	202104	304	2.8	8192	14	20.74	1	12	134	147640.7
1779	202104	305	2.8	8192	14	20.74	1	12	1080	150471.7
1780	202104	306	2.6	8192	14	20.74	1	12	1048	119624.9
1781	202104	307	2.8	8192	13.3	20.74	1	12	446	185208.1
1782	202104	308	2.4	8192	13.3	20.74	1	12	537	168058.7
1783	202104	309	2.1	8192	12.5	20.74	1	12	300	155239.4

1784	202104	310	2.1	8192	12.5	20.74	1	12	356	145693.5
1785	202104	311	1.8	8192	12.5	20.74	1	12	428	129957.8
1786	202104	312	1.8	8192	12.5	20.74	1	12	660	130022.2
1787	202104	331	1.9	4096	15.6	20.74	1	8	598	72640.9
1788	202104	332	1.8	8192	15.6	20.74	1	8	206	93627.5
1789	202104	333	1.6	8192	15.6	20.74	1	8	258	93878.5
1790	202104	334	2.1	4096	15.6	20.74	1	8	293	84058.6
1791	202104	335	2.4	8192	13.3	20.74	1	8	754	163335
1792	202104	336	2.4	8192	13.3	20.74	1	8	350	144788.4
1793	202104	337	2.8	8192	15.6	20.74	1	8	362	131672.3
1794	202104	338	2.8	8192	15.6	20.74	1	8	727	133985.2
1795	202104	339	2.8	8192	15.6	20.74	1	8	1181	125486.3
1796	202104	340	2.8	16384	13.3	20.74	1	8	203	203548.5
1797	202104	341	2.4	8192	13.3	20.74	1	8	664	186452.7
1798	202104	342	2.8	16384	15.6	20.74	1	8	122	168975.1
1799	202104	343	2.4	8192	15.6	20.74	1	8	195	150003.9
1800	202104	344	1.8	4096	13.3	20.74	1	8	280	139939.2
1801	202104	345	1.8	4096	13.3	20.74	1	8	643	121974.5
1802	202104	346	2.4	8192	15.6	20.74	1	8	412	105893.6
1803	202104	347	2.4	8192	15.6	20.74	1	8	633	112439.3
1804	202104	348	2.8	8192	16.1	20.74	1	8	266	157124.5
1805	202104	349	2.8	8192	16.1	20.74	1	8	381	147861
1806	202104	350	2.8	8192	15.6	20.74	1	8	1147	128890.7
1807	202104	351	2.4	8192	15.6	20.74	1	8	693	112991.5
1808	202104	354	1.8	8192	15.6	20.74	1	8	347	112722.1
1809	202104	356	1.6	8192	13.3	20.74	1	8	274	124273.8
1810	202104	365	1.8	4096	13.3	20.74	1	8	315	111297.6
1811	202104	366	1.8	4096	13.3	20.74	1	8	151	85981.3
1812	202105	1	1.1	4096	11.6	10.49	0	6	2455	19476
1813	202105	2	1.1	4096	14	20.74	0	6	605	21668.1
1814	202105	3	1.1	4096	14	20.74	0	6	387	40844.1
1815	202105	4	1.1	8192	15.6	20.74	1	6	207	30060
1816	202105	5	1.8	8192	15.6	20.74	1	6	155	80469.8
1817	202105	6	2.1	8192	15.6	20.74	1	6	446	60340
1818	202105	7	2.1	8192	15.6	20.74	1	6	127	60149.3

1819	202105	9	1.1	4096	15.6	10.49	1	6	488	29329
1820	202105	10	2.3	8192	15.6	20.74	1	6	193	64688.8
1821	202105	11	2.3	8192	15.6	20.74	1	6	1068	85268.8
1822	202105	13	1.1	4096	11.6	10.49	1	6	457	30316
1823	202105	15	1.1	4096	11.6	10.49	1	6	118	31629.9
1824	202105	16	2.5	8192	15.6	20.74	1	6	218	82891
1825	202105	17	2.5	8192	15.6	20.74	1	6	104	98016.2
1826	202105	19	2	8192	14	20.74	1	6	184	109539.1
1827	202105	20	2	8192	14	20.74	1	6	453	101371
1828	202105	21	2.6	8192	14	20.74	1	6	720	67563.3
1829	202105	22	2.7	8192	14	20.74	1	6	269	65181.9
1830	202105	23	2	8192	14	20.74	1	6	134	84472.3
1831	202105	27	3.1	16384	15.6	20.74	1	6	252	118000
1832	202105	35	1.2	8192	15.6	20.74	1	7	100	75751.6
1833	202105	38	1.1	4096	14	20.74	0	7	121	31960.6
1834	202105	41	1.9	4096	12	12.46	0	7	248	25130.3
1835	202105	43	1	8192	15.6	20.74	1	7	682	90489.5
1836	202105	62	2.6	16384	17.3	20.74	1	4	373	164971.4
1837	202105	63	2.6	16384	15.6	20.74	1	4	139	119324.8
1838	202105	64	2.6	8192	15.6	20.74	1	4	101	105015.1
1839	202105	65	2.5	8192	15.6	20.74	1	4	153	117580.2
1840	202105	79	1.6	8192	14	20.74	0	5	118	69890.4
1841	202105	80	2.1	8192	14	20.74	0	5	189	52125.3
1842	202105	111	1.5	4096	13.3	20.74	1	11	268	96336.4
1843	202105	156	1.1	8192	13.3	40.96	0	10	124	100688.9
1844	202105	157	1.1	8192	13.3	40.96	0	10	209	97925.4
1845	202105	158	1.1	8192	13.3	40.96	0	10	136	98570.2
1846	202105	159	1.1	8192	13.3	40.96	0	10	690	85749.3
1847	202105	160	1.1	8192	13.3	40.96	0	10	305	83181
1848	202105	161	1.1	8192	13.3	40.96	0	10	206	82576.3
1849	202105	162	2.6	16384	16	58.98	0	10	217	243413
1850	202105	163	2.3	16384	16	58.98	0	10	205	279606.9
1851	202105	164	2.6	16384	16	58.98	0	10	106	245477.1
1852	202105	166	2	16384	13.3	40.96	0	10	361	185048.3
1853	202105	167	2	16384	13.3	40.96	0	10	190	207308.6

1854	202105	168	2	16384	13.3	40.96	0	10	221	185215.6
1855	202105	169	2	16384	13.3	40.96	0	10	118	203220.3
1856	202105	212	2.1	4096	14	20.74	1	12	457	81117.6
1857	202105	213	2.6	8192	15.6	82.94	0	12	260	150800.7
1858	202105	218	1.2	8192	12.5	20.74	1	12	148	100648.3
1859	202105	224	1.5	4096	12.5	20.74	1	12	196	59269.1
1860	202105	227	2	8192	15.6	20.74	1	12	1929	137030.5
1861	202105	228	1.8	8192	13.3	20.74	1	12	148	144626.4
1862	202105	233	1.2	8192	15.6	20.74	1	5	292	74877.3
1863	202105	234	1	8192	15.6	20.74	1	5	312	84184.5
1864	202105	253	2.3	8192	15.6	20.74	1	9	229	84838.5
1865	202105	258	2.1	8192	13.3	20.74	1	9	155	78015
1866	202105	267	2.6	8192	15.6	20.74	1	9	322	76959.5
1867	202105	270	1.9	4096	15.6	10.49	1	9	108	63267.1
1868	202105	271	1.9	4096	15.6	10.49	1	9	565	60229.6
1869	202105	272	1.9	4096	15.6	10.49	1	9	1182	54997.9
1870	202105	273	2.6	8192	15.6	20.74	1	9	420	118295.3
1871	202105	274	2.6	16384	15.6	20.74	1	9	183	141147.9
1872	202105	275	1.9	4096	15.6	10.49	1	9	210	64827.1
1873	202105	276	1.1	4096	11.6	10.49	0	9	250	28207.1
1874	202105	278	1.9	4096	13.3	20.74	0	9	470	54144
1875	202105	279	1.8	8192	15.6	20.74	1	9	240	102833.3
1876	202105	282	1.8	8192	13.3	40.96	0	9	255	111551.8
1877	202105	285	2.1	8192	15.6	20.74	1	9	126	66600.8
1878	202105	286	1.8	8192	14	20.74	1	9	284	121451.1
1879	202105	287	2.4	8192	15.6	20.74	1	9	479	100231.1
1880	202105	288	2.6	8192	17.3	20.74	1	11	623	180788
1881	202105	289	2.6	8192	17.3	20.74	1	11	401	167588.8
1882	202105	290	1.8	8192	15.6	20.74	1	11	228	139006.3
1883	202105	291	1.8	8192	15.6	20.74	1	11	209	142043.1
1884	202105	292	1.8	8192	15.6	20.74	1	11	463	136280.6
1885	202105	293	1.8	8192	15.6	20.74	1	11	191	125775.8
1886	202105	294	1.8	8192	15.6	20.74	1	11	134	120937.4
1887	202105	296	2	8192	17.3	20.74	1	11	641	133324.5
1888	202105	298	2	8192	13.3	20.74	1	11	390	159832.5

1889	202105	305	2.8	8192	14	20.74	1	12	701	146205.8
1890	202105	306	2.6	8192	14	20.74	1	12	622	116984.3
1891	202105	307	2.8	8192	13.3	20.74	1	12	270	180978.7
1892	202105	308	2.4	8192	13.3	20.74	1	12	158	166970
1893	202105	310	2.1	8192	12.5	20.74	1	12	156	142430.5
1894	202105	311	1.8	8192	12.5	20.74	1	12	154	131386.7
1895	202105	312	1.8	8192	12.5	20.74	1	12	316	128025.3
1896	202105	331	1.9	4096	15.6	20.74	1	8	387	72526.6
1897	202105	333	1.6	8192	15.6	20.74	1	8	116	87267
1898	202105	334	2.1	4096	15.6	20.74	1	8	249	82056.4
1899	202105	335	2.4	8192	13.3	20.74	1	8	396	164066.1
1900	202105	336	2.4	8192	13.3	20.74	1	8	201	146291
1901	202105	337	2.8	8192	15.6	20.74	1	8	332	131820.3
1902	202105	338	2.8	8192	15.6	20.74	1	8	759	133073.6
1903	202105	339	2.8	8192	15.6	20.74	1	8	1053	125533.3
1904	202105	340	2.8	16384	13.3	20.74	1	8	144	198674.1
1905	202105	341	2.4	8192	13.3	20.74	1	8	225	182257.7
1906	202105	342	2.8	16384	15.6	20.74	1	8	119	166292
1907	202105	343	2.4	8192	15.6	20.74	1	8	140	151047.3
1908	202105	344	1.8	4096	13.3	20.74	1	8	113	139131.2
1909	202105	345	1.8	4096	13.3	20.74	1	8	231	122826
1910	202105	346	2.4	8192	15.6	20.74	1	8	432	105012.3
1911	202105	347	2.4	8192	15.6	20.74	1	8	554	112064.8
1912	202105	348	2.8	8192	16.1	20.74	1	8	288	155707.7
1913	202105	349	2.8	8192	16.1	20.74	1	8	372	147147.6
1914	202105	350	2.8	8192	15.6	20.74	1	8	1102	131541
1915	202105	351	2.4	8192	15.6	20.74	1	8	650	112694.3
1916	202105	364	1.6	8192	15.6	20.74	1	8	158	86054.6
1917	202106	1	1.1	4096	11.6	10.49	0	6	1121	20826.6
1918	202106	2	1.1	4096	14	20.74	0	6	239	22827.1
1919	202106	3	1.1	4096	14	20.74	0	6	465	32434.2
1920	202106	4	1.1	8192	15.6	20.74	1	6	340	29045.9
1921	202106	5	1.8	8192	15.6	20.74	1	6	116	83346.1
1922	202106	6	2.1	8192	15.6	20.74	1	6	124	64451.8
1923	202106	7	2.1	8192	15.6	20.74	1	6	108	65161.9

1924	202106	9	1.1	4096	15.6	10.49	1	6	317	25961.9
1925	202106	10	2.3	8192	15.6	20.74	1	6	105	54559.7
1926	202106	11	2.3	8192	15.6	20.74	1	6	955	85382.4
1927	202106	13	1.1	4096	11.6	10.49	1	6	427	30163.9
1928	202106	15	1.1	4096	11.6	10.49	1	6	108	30916
1929	202106	16	2.5	8192	15.6	20.74	1	6	200	84722
1930	202106	18	2.9	8192	14	20.74	1	6	169	99782.8
1931	202106	19	2	8192	14	20.74	1	6	100	108453.6
1932	202106	20	2	8192	14	20.74	1	6	281	101869.1
1933	202106	21	2.6	8192	14	20.74	1	6	440	67854
1934	202106	22	2.7	8192	14	20.74	1	6	159	66232.5
1935	202106	23	2	8192	14	20.74	1	6	159	78965.8
1936	202106	26	1.1	4096	11.6	10.49	0	6	500	25938.1
1937	202106	27	3.1	16384	15.6	20.74	1	6	136	122394.3
1938	202106	35	1.2	8192	15.6	20.74	1	7	184	78655.2
1939	202106	38	1.1	4096	14	20.74	0	7	283	35804
1940	202106	41	1.9	4096	12	12.46	0	7	227	25995.9
1941	202106	42	1	8192	15.6	20.74	1	7	151	65466.8
1942	202106	43	1	8192	15.6	20.74	1	7	480	93031.1
1943	202106	62	2.6	16384	17.3	20.74	1	4	233	168012.1
1944	202106	63	2.6	16384	15.6	20.74	1	4	111	119951.1
1945	202106	64	2.6	8192	15.6	20.74	1	4	165	106182.3
1946	202106	65	2.5	8192	15.6	20.74	1	4	199	114204.2
1947	202106	66	2.6	16384	15.6	20.74	1	4	677	153454.3
1948	202106	67	2.4	16384	17.3	20.74	1	4	119	222200.2
1949	202106	69	2.4	16384	17.3	20.74	1	4	166	148160.5
1950	202106	79	1.6	8192	14	20.74	0	5	439	69369.9
1951	202106	80	2.1	8192	14	20.74	0	5	847	53478.2
1952	202106	111	1.5	4096	13.3	20.74	1	11	123	92457.1
1953	202106	122	2.6	8192	15.6	82.94	1	11	122	136213
1954	202106	156	1.1	8192	13.3	40.96	0	10	195	92857.6
1955	202106	157	1.1	8192	13.3	40.96	0	10	252	93432.5
1956	202106	158	1.1	8192	13.3	40.96	0	10	250	91817.6
1957	202106	159	1.1	8192	13.3	40.96	0	10	745	81507.6
1958	202106	160	1.1	8192	13.3	40.96	0	10	273	80330

1959	202106	161	1.1	8192	13.3	40.96	0	10	203	79458
1960	202106	162	2.6	16384	16	58.98	0	10	241	244218.5
1961	202106	163	2.3	16384	16	58.98	0	10	174	279627.4
1962	202106	166	2	16384	13.3	40.96	0	10	259	181565.6
1963	202106	167	2	16384	13.3	40.96	0	10	111	205534.2
1964	202106	168	2	16384	13.3	40.96	0	10	118	184426.4
1965	202106	170	1.4	8192	13.3	40.96	0	10	134	99501.9
1966	202106	171	1.4	8192	13.3	40.96	0	10	133	113759.5
1967	202106	172	1.4	8192	13.3	40.96	0	10	166	98359.5
1968	202106	173	1.4	8192	13.3	40.96	0	10	168	116430.1
1969	202106	212	2.1	4096	14	20.74	1	12	128	78044.9
1970	202106	213	2.6	8192	15.6	82.94	0	12	237	143119.3
1971	202106	218	1.2	8192	12.5	20.74	1	12	191	79715
1972	202106	227	2	8192	15.6	20.74	1	12	1501	137179.1
1973	202106	228	1.8	8192	13.3	20.74	1	12	115	132211.5
1974	202106	233	1.2	8192	15.6	20.74	1	5	284	75049.3
1975	202106	234	1	8192	15.6	20.74	1	5	118	84976.2
1976	202106	238	1.8	4096	15.6	10.49	1	9	141	66718.6
1977	202106	240	2.1	8192	14	20.74	1	9	151	96493.6
1978	202106	241	1.8	8192	15.6	20.74	1	9	106	102496.1
1979	202106	244	1.6	8192	15.6	20.74	1	9	381	69425.4
1980	202106	253	2.3	8192	15.6	20.74	1	9	200	84095.7
1981	202106	267	2.6	8192	15.6	20.74	1	9	456	71176.3
1982	202106	270	1.9	4096	15.6	10.49	1	9	114	62796.8
1983	202106	271	1.9	4096	15.6	10.49	1	9	499	59154.6
1984	202106	272	1.9	4096	15.6	10.49	1	9	419	55154.2
1985	202106	273	2.6	8192	15.6	20.74	1	9	300	118278.1
1986	202106	274	2.6	16384	15.6	20.74	1	9	208	140851
1987	202106	275	1.9	4096	15.6	10.49	1	9	154	62835.9
1988	202106	276	1.1	4096	11.6	10.49	0	9	316	27740
1989	202106	278	1.9	4096	13.3	20.74	0	9	342	53283.6
1990	202106	279	1.8	8192	15.6	20.74	1	9	196	99952.3
1991	202106	281	2.1	8192	13.3	40.96	0	9	158	87103.8
1992	202106	282	1.8	8192	13.3	40.96	0	9	187	107631.8
1993	202106	286	1.8	8192	14	20.74	1	9	152	125199.4

1994	202106	287	2.4	8192	15.6	20.74	1	9	277	101033.5
1995	202106	288	2.6	8192	17.3	20.74	1	11	483	179790.2
1996	202106	289	2.6	8192	17.3	20.74	1	11	296	169673.5
1997	202106	290	1.8	8192	15.6	20.74	1	11	107	135200.6
1998	202106	291	1.8	8192	15.6	20.74	1	11	135	131872.6
1999	202106	292	1.8	8192	15.6	20.74	1	11	124	131425.9
2000	202106	296	2	8192	17.3	20.74	1	11	498	131663.4
2001	202106	298	2	8192	13.3	20.74	1	11	217	159311.8
2002	202106	305	2.8	8192	14	20.74	1	12	769	141236.9
2003	202106	306	2.6	8192	14	20.74	1	12	571	110324.6
2004	202106	307	2.8	8192	13.3	20.74	1	12	223	181319.2
2005	202106	308	2.4	8192	13.3	20.74	1	12	127	169291.3
2006	202106	311	1.8	8192	12.5	20.74	1	12	105	129465.2
2007	202106	312	1.8	8192	12.5	20.74	1	12	231	127992
2008	202106	331	1.9	4096	15.6	20.74	1	8	331	72658.9
2009	202106	334	2.1	4096	15.6	20.74	1	8	114	80570.7
2010	202106	335	2.4	8192	13.3	20.74	1	8	306	160010.3
2011	202106	336	2.4	8192	13.3	20.74	1	8	131	145248.1
2012	202106	337	2.8	8192	15.6	20.74	1	8	198	130687.3
2013	202106	338	2.8	8192	15.6	20.74	1	8	435	131004.7
2014	202106	339	2.8	8192	15.6	20.74	1	8	893	127369.7
2015	202106	340	2.8	16384	13.3	20.74	1	8	138	195150.3
2016	202106	341	2.4	8192	13.3	20.74	1	8	187	174623.6
2017	202106	342	2.8	16384	15.6	20.74	1	8	102	165987.9
2018	202106	343	2.4	8192	15.6	20.74	1	8	125	151838.2
2019	202106	345	1.8	4096	13.3	20.74	1	8	194	119184.3
2020	202106	346	2.4	8192	15.6	20.74	1	8	264	104595.3
2021	202106	347	2.4	8192	15.6	20.74	1	8	515	112398.2
2022	202106	348	2.8	8192	16.1	20.74	1	8	209	156575.7
2023	202106	349	2.8	8192	16.1	20.74	1	8	297	145898.8
2024	202106	350	2.8	8192	15.6	20.74	1	8	857	130245.2
2025	202106	351	2.4	8192	15.6	20.74	1	8	560	111415.5
2026	202107	1	1.1	4096	11.6	10.49	0	6	1186	20527.9
2027	202107	2	1.1	4096	14	20.74	0	6	148	24365.1
2028	202107	3	1.1	4096	14	20.74	0	6	191	31301.7

2029	202107	4	1.1	8192	15.6	20.74	1	6	140	34498.3
2030	202107	5	1.8	8192	15.6	20.74	1	6	131	80920.3
2031	202107	6	2.1	8192	15.6	20.74	1	6	262	60404.4
2032	202107	7	2.1	8192	15.6	20.74	1	6	335	60124.8
2033	202107	8	1.8	8192	15.6	20.74	1	6	108	79463.7
2034	202107	9	1.1	4096	15.6	10.49	1	6	142	23974.9
2035	202107	11	2.3	8192	15.6	20.74	1	6	1135	84753.6
2036	202107	13	1.1	4096	11.6	10.49	1	6	707	28645.5
2037	202107	15	1.1	4096	11.6	10.49	1	6	102	31639.8
2038	202107	16	2.5	8192	15.6	20.74	1	6	140	90199.2
2039	202107	17	2.5	8192	15.6	20.74	1	6	433	86757.3
2040	202107	18	2.9	8192	14	20.74	1	6	263	91016.2
2041	202107	19	2	8192	14	20.74	1	6	122	107142.7
2042	202107	20	2	8192	14	20.74	1	6	418	90854.8
2043	202107	21	2.6	8192	14	20.74	1	6	500	67610.7
2044	202107	22	2.7	8192	14	20.74	1	6	116	65525.3
2045	202107	23	2	8192	14	20.74	1	6	215	64882.8
2046	202107	26	1.1	4096	11.6	10.49	0	6	175	22925.6
2047	202107	27	3.1	16384	15.6	20.74	1	6	163	128011.1
2048	202107	28	2.2	16384	15.6	20.74	1	6	240	108604.7
2049	202107	31	1.1	4096	15.6	10.49	0	6	107	28621.7
2050	202107	35	1.2	8192	15.6	20.74	1	7	204	76929.4
2051	202107	37	1.1	4096	15.6	20.74	1	7	103	44939.4
2052	202107	38	1.1	4096	14	20.74	0	7	174	31622.1
2053	202107	39	1.1	4096	14	10.49	0	7	255	22355.2
2054	202107	41	1.9	4096	12	12.46	0	7	338	24301.8
2055	202107	42	1	8192	15.6	20.74	1	7	176	65380
2056	202107	43	1	8192	15.6	20.74	1	7	612	93460.7
2057	202107	62	2.6	16384	17.3	20.74	1	4	395	159750.7
2058	202107	63	2.6	16384	15.6	20.74	1	4	108	120706.9
2059	202107	64	2.6	8192	15.6	20.74	1	4	147	106728.6
2060	202107	65	2.5	8192	15.6	20.74	1	4	212	114539.9
2061	202107	66	2.6	16384	15.6	20.74	1	4	204	149191.4
2062	202107	67	2.4	16384	17.3	20.74	1	4	150	209738.5
2063	202107	69	2.4	16384	17.3	20.74	1	4	101	148445.4

2064	202107	70	2.4	16384	17.3	20.74	1	4	180	154074.5
2065	202107	71	2.6	16384	15.6	20.74	1	4	178	133312.8
2066	202107	79	1.6	8192	14	20.74	0	5	128	68113.6
2067	202107	80	2.1	8192	14	20.74	0	5	107	56992
2068	202107	122	2.6	8192	15.6	82.94	1	11	147	127576.6
2069	202107	159	1.1	8192	13.3	40.96	0	10	519	78531
2070	202107	162	2.6	16384	16	58.98	0	10	228	243804.7
2071	202107	163	2.3	16384	16	58.98	0	10	220	282769.9
2072	202107	166	2	16384	13.3	40.96	0	10	225	183140.5
2073	202107	167	2	16384	13.3	40.96	0	10	135	205124.6
2074	202107	168	2	16384	13.3	40.96	0	10	175	184532.4
2075	202107	212	2.1	4096	14	20.74	1	12	115	71548.9
2076	202107	213	2.6	8192	15.6	82.94	0	12	216	142176.1
2077	202107	214	2.3	8192	15.6	20.74	0	12	123	96176.1
2078	202107	227	2	8192	15.6	20.74	1	12	1494	136960.3
2079	202107	233	1.2	8192	15.6	20.74	1	5	262	74407.3
2080	202107	234	1	8192	15.6	20.74	1	5	132	84538.9
2081	202107	238	1.8	4096	15.6	10.49	1	9	366	65995.1
2082	202107	240	2.1	8192	14	20.74	1	9	270	96798.1
2083	202107	241	1.8	8192	15.6	20.74	1	9	368	101908.8
2084	202107	244	1.6	8192	15.6	20.74	1	9	656	63950.8
2085	202107	253	2.3	8192	15.6	20.74	1	9	473	84383.5
2086	202107	267	2.6	8192	15.6	20.74	1	9	409	71373
2087	202107	270	1.9	4096	15.6	10.49	1	9	146	61467
2088	202107	271	1.9	4096	15.6	10.49	1	9	517	55392
2089	202107	272	1.9	4096	15.6	10.49	1	9	293	53912.1
2090	202107	273	2.6	8192	15.6	20.74	1	9	318	117529.2
2091	202107	274	2.6	16384	15.6	20.74	1	9	151	140956.6
2092	202107	275	1.9	4096	15.6	10.49	1	9	206	62296.3
2093	202107	276	1.1	4096	11.6	10.49	0	9	372	26794.2
2094	202107	278	1.9	4096	13.3	20.74	0	9	431	52274.1
2095	202107	279	1.8	8192	15.6	20.74	1	9	120	86810.6
2096	202107	281	2.1	8192	13.3	40.96	0	9	137	87080.6
2097	202107	282	1.8	8192	13.3	40.96	0	9	212	108751.2
2098	202107	286	1.8	8192	14	20.74	1	9	126	125347

2099	202107	287	2.4	8192	15.6	20.74	1	9	193	98872.7
2100	202107	288	2.6	8192	17.3	20.74	1	11	495	179292.7
2101	202107	289	2.6	8192	17.3	20.74	1	11	333	168281.4
2102	202107	296	2	8192	17.3	20.74	1	11	405	134026.3
2103	202107	298	2	8192	13.3	20.74	1	11	379	152548.2
2104	202107	305	2.8	8192	14	20.74	1	12	694	142130.4
2105	202107	306	2.6	8192	14	20.74	1	12	488	108910.9
2106	202107	307	2.8	8192	13.3	20.74	1	12	280	180015.7
2107	202107	308	2.4	8192	13.3	20.74	1	12	130	164710.7
2108	202107	309	2.1	8192	12.5	20.74	1	12	114	153580.1
2109	202107	310	2.1	8192	12.5	20.74	1	12	113	142769.6
2110	202107	311	1.8	8192	12.5	20.74	1	12	108	129995.4
2111	202107	312	1.8	8192	12.5	20.74	1	12	235	126592.9
2112	202107	323	2.1	8192	15.6	10.49	1	8	152	102228.7
2113	202107	331	1.9	4096	15.6	20.74	1	8	268	69952.3
2114	202107	334	2.1	4096	15.6	20.74	1	8	104	70936
2115	202107	335	2.4	8192	13.3	20.74	1	8	339	154756.6
2116	202107	336	2.4	8192	13.3	20.74	1	8	153	144616.3
2117	202107	337	2.8	8192	15.6	20.74	1	8	214	129564
2118	202107	338	2.8	8192	15.6	20.74	1	8	428	129162.3
2119	202107	339	2.8	8192	15.6	20.74	1	8	814	126706.3
2120	202107	340	2.8	16384	13.3	20.74	1	8	179	195008
2121	202107	341	2.4	8192	13.3	20.74	1	8	210	174029.7
2122	202107	342	2.8	16384	15.6	20.74	1	8	128	164763.8
2123	202107	343	2.4	8192	15.6	20.74	1	8	149	146832.2
2124	202107	344	1.8	4096	13.3	20.74	1	8	161	128554
2125	202107	345	1.8	4096	13.3	20.74	1	8	195	116463
2126	202107	346	2.4	8192	15.6	20.74	1	8	242	105211.3
2127	202107	347	2.4	8192	15.6	20.74	1	8	571	111807.4
2128	202107	348	2.8	8192	16.1	20.74	1	8	243	154415.9
2129	202107	349	2.8	8192	16.1	20.74	1	8	327	146335.7
2130	202107	350	2.8	8192	15.6	20.74	1	8	1083	126312.7
2131	202107	351	2.4	8192	15.6	20.74	1	8	681	111220.5
2132	202107	365	1.8	4096	13.3	20.74	1	8	117	95569.2
2133	202108	1	1.1	4096	11.6	10.49	0	6	1083	21364.7

2134	202108	2	1.1	4096	14	20.74	0	6	359	23121.9
2135	202108	4	1.1	8192	15.6	20.74	1	6	137	33002.2
2136	202108	5	1.8	8192	15.6	20.74	1	6	109	81563.8
2137	202108	6	2.1	8192	15.6	20.74	1	6	132	60543.6
2138	202108	7	2.1	8192	15.6	20.74	1	6	215	60751.3
2139	202108	9	1.1	4096	15.6	10.49	1	6	149	26082.7
2140	202108	10	2.3	8192	15.6	20.74	1	6	207	57167.9
2141	202108	11	2.3	8192	15.6	20.74	1	6	1517	81715.3
2142	202108	13	1.1	4096	11.6	10.49	1	6	545	28183.9
2143	202108	14	1.1	4096	11.6	10.49	1	6	135	29845.3
2144	202108	15	1.1	4096	11.6	10.49	1	6	184	29847.7
2145	202108	16	2.5	8192	15.6	20.74	1	6	121	90035.2
2146	202108	17	2.5	8192	15.6	20.74	1	6	133	57741.9
2147	202108	18	2.9	8192	14	20.74	1	6	171	87160.1
2148	202108	19	2	8192	14	20.74	1	6	342	77063.2
2149	202108	20	2	8192	14	20.74	1	6	233	80956.5
2150	202108	21	2.6	8192	14	20.74	1	6	480	67414.8
2151	202108	22	2.7	8192	14	20.74	1	6	133	65429.3
2152	202108	23	2	8192	14	20.74	1	6	213	61420.9
2153	202108	26	1.1	4096	11.6	10.49	0	6	616	20928.7
2154	202108	27	3.1	16384	15.6	20.74	1	6	130	128190.1
2155	202108	28	2.2	16384	15.6	20.74	1	6	279	108459.8
2156	202108	29	1.1	4096	11.6	10.49	1	6	120	42875.5
2157	202108	31	1.1	4096	15.6	10.49	0	6	136	27037.4
2158	202108	35	1.2	8192	15.6	20.74	1	7	176	77168.6
2159	202108	37	1.1	4096	15.6	20.74	1	7	123	44679.3
2160	202108	39	1.1	4096	14	10.49	0	7	246	23674.9
2161	202108	41	1.9	4096	12	12.46	0	7	197	22991
2162	202108	43	1	8192	15.6	20.74	1	7	498	91617.3
2163	202108	62	2.6	16384	17.3	20.74	1	4	447	157644.9
2164	202108	63	2.6	16384	15.6	20.74	1	4	110	122009.7
2165	202108	64	2.6	8192	15.6	20.74	1	4	133	105378.5
2166	202108	65	2.5	8192	15.6	20.74	1	4	147	117287.2
2167	202108	69	2.4	16384	17.3	20.74	1	4	149	148199.9
2168	202108	70	2.4	16384	17.3	20.74	1	4	101	154091.9

2169	202108	71	2.6	16384	15.6	20.74	1	4	155	133361.5
2170	202108	72	2.5	16384	15.6	20.74	1	4	128	108051.1
2171	202108	156	1.1	8192	13.3	40.96	0	10	107	92123.9
2172	202108	159	1.1	8192	13.3	40.96	0	10	362	76409.1
2173	202108	160	1.1	8192	13.3	40.96	0	10	141	76269.7
2174	202108	162	2.6	16384	16	58.98	0	10	155	239608.6
2175	202108	163	2.3	16384	16	58.98	0	10	200	281315.8
2176	202108	166	2	16384	13.3	40.96	0	10	443	183865.4
2177	202108	167	2	16384	13.3	40.96	0	10	124	205602.8
2178	202108	168	2	16384	13.3	40.96	0	10	130	183897.6
2179	202108	213	2.6	8192	15.6	82.94	0	12	252	131930.9
2180	202108	214	2.3	8192	15.6	20.74	0	12	102	99042.8
2181	202108	227	2	8192	15.6	20.74	1	12	1785	133625.7
2182	202108	228	1.8	8192	13.3	20.74	1	12	104	120900.6
2183	202108	233	1.2	8192	15.6	20.74	1	5	296	74651.4
2184	202108	234	1	8192	15.6	20.74	1	5	170	84770.7
2185	202108	238	1.8	4096	15.6	10.49	1	9	334	67483.3
2186	202108	240	2.1	8192	14	20.74	1	9	203	96608.3
2187	202108	241	1.8	8192	15.6	20.74	1	9	391	102000
2188	202108	244	1.6	8192	15.6	20.74	1	9	509	61367.4
2189	202108	253	2.3	8192	15.6	20.74	1	9	974	85807.7
2190	202108	258	2.1	8192	13.3	20.74	1	9	127	68389.4
2191	202108	267	2.6	8192	15.6	20.74	1	9	391	71273.2
2192	202108	270	1.9	4096	15.6	10.49	1	9	240	56497.7
2193	202108	271	1.9	4096	15.6	10.49	1	9	380	54565
2194	202108	272	1.9	4096	15.6	10.49	1	9	229	52356.4
2195	202108	273	2.6	8192	15.6	20.74	1	9	329	115956.4
2196	202108	274	2.6	16384	15.6	20.74	1	9	220	129675.7
2197	202108	275	1.9	4096	15.6	10.49	1	9	168	62471.9
2198	202108	276	1.1	4096	11.6	10.49	0	9	200	28295.5
2199	202108	278	1.9	4096	13.3	20.74	0	9	380	52618.5
2200	202108	281	2.1	8192	13.3	40.96	0	9	138	86299.4
2201	202108	282	1.8	8192	13.3	40.96	0	9	186	111264.4
2202	202108	286	1.8	8192	14	20.74	1	9	134	124937
2203	202108	287	2.4	8192	15.6	20.74	1	9	176	97693.4

2204	202108	288	2.6	8192	17.3	20.74	1	11	691	171631.7
2205	202108	289	2.6	8192	17.3	20.74	1	11	503	160119.4
2206	202108	296	2	8192	17.3	20.74	1	11	333	135991.9
2207	202108	298	2	8192	13.3	20.74	1	11	535	146125.5
2208	202108	304	2.8	8192	14	20.74	1	12	101	133473.9
2209	202108	305	2.8	8192	14	20.74	1	12	944	137784.4
2210	202108	306	2.6	8192	14	20.74	1	12	656	105640.2
2211	202108	307	2.8	8192	13.3	20.74	1	12	261	178894.4
2212	202108	308	2.4	8192	13.3	20.74	1	12	159	164479.9
2213	202108	309	2.1	8192	12.5	20.74	1	12	132	148933.9
2214	202108	310	2.1	8192	12.5	20.74	1	12	125	142091.7
2215	202108	312	1.8	8192	12.5	20.74	1	12	184	126970.7
2216	202108	323	2.1	8192	15.6	10.49	1	8	342	96901.1
2217	202108	331	1.9	4096	15.6	20.74	1	8	194	69880
2218	202108	335	2.4	8192	13.3	20.74	1	8	329	156359.5
2219	202108	336	2.4	8192	13.3	20.74	1	8	129	145120.7
2220	202108	337	2.8	8192	15.6	20.74	1	8	182	127660.9
2221	202108	338	2.8	8192	15.6	20.74	1	8	318	128136.8
2222	202108	339	2.8	8192	15.6	20.74	1	8	892	126375.8
2223	202108	340	2.8	16384	13.3	20.74	1	8	124	192886.3
2224	202108	341	2.4	8192	13.3	20.74	1	8	202	175576.5
2225	202108	343	2.4	8192	15.6	20.74	1	8	141	144624.2
2226	202108	344	1.8	4096	13.3	20.74	1	8	103	129128.7
2227	202108	345	1.8	4096	13.3	20.74	1	8	155	117413.2
2228	202108	346	2.4	8192	15.6	20.74	1	8	168	105377.7
2229	202108	347	2.4	8192	15.6	20.74	1	8	423	110439.1
2230	202108	348	2.8	8192	16.1	20.74	1	8	263	150525
2231	202108	349	2.8	8192	16.1	20.74	1	8	279	144220.6
2232	202108	350	2.8	8192	15.6	20.74	1	8	1255	124482.2
2233	202108	351	2.4	8192	15.6	20.74	1	8	672	109528.9
2234	202109	1	1.1	4096	11.6	10.49	0	6	1559	20097.2
2235	202109	2	1.1	4096	14	20.74	0	6	271	22992.1
2236	202109	6	2.1	8192	15.6	20.74	1	6	111	61106.8
2237	202109	7	2.1	8192	15.6	20.74	1	6	268	61257.5
2238	202109	9	1.1	4096	15.6	10.49	1	6	152	27026

2239	202109	10	2.3	8192	15.6	20.74	1	6	608	40859.8
2240	202109	11	2.3	8192	15.6	20.74	1	6	1068	77792.5
2241	202109	13	1.1	4096	11.6	10.49	1	6	794	28448
2242	202109	15	1.1	4096	11.6	10.49	1	6	164	31750.8
2243	202109	16	2.5	8192	15.6	20.74	1	6	126	88183.1
2244	202109	18	2.9	8192	14	20.74	1	6	182	73189.6
2245	202109	19	2	8192	14	20.74	1	6	182	75084.9
2246	202109	21	2.6	8192	14	20.74	1	6	346	67906
2247	202109	22	2.7	8192	14	20.74	1	6	139	63433.7
2248	202109	23	2	8192	14	20.74	1	6	133	57771
2249	202109	26	1.1	4096	11.6	10.49	0	6	137	21587.6
2250	202109	28	2.2	16384	15.6	20.74	1	6	194	106996.1
2251	202109	29	1.1	4096	11.6	10.49	1	6	102	44688.3
2252	202109	31	1.1	4096	15.6	10.49	0	6	296	24826.9
2253	202109	32	2.6	4096	14	20.74	1	6	118	40007.8
2254	202109	35	1.2	8192	15.6	20.74	1	7	256	75829.1
2255	202109	37	1.1	4096	15.6	20.74	1	7	214	46624
2256	202109	38	1.1	4096	14	20.74	0	7	168	30973.6
2257	202109	39	1.1	4096	14	10.49	0	7	236	24553.4
2258	202109	42	1	8192	15.6	20.74	1	7	112	67382.3
2259	202109	43	1	8192	15.6	20.74	1	7	604	92095.9
2260	202109	62	2.6	16384	17.3	20.74	1	4	337	158302.6
2261	202109	63	2.6	16384	15.6	20.74	1	4	138	121576.6
2262	202109	64	2.6	8192	15.6	20.74	1	4	110	106284
2263	202109	65	2.5	8192	15.6	20.74	1	4	245	118892.6
2264	202109	66	2.6	16384	15.6	20.74	1	4	135	151411.4
2265	202109	67	2.4	16384	17.3	20.74	1	4	150	214859.8
2266	202109	69	2.4	16384	17.3	20.74	1	4	113	148221.8
2267	202109	70	2.4	16384	17.3	20.74	1	4	139	151871.1
2268	202109	71	2.6	16384	15.6	20.74	1	4	155	128556.7
2269	202109	72	2.5	16384	15.6	20.74	1	4	165	107674.5
2270	202109	79	1.6	8192	14	20.74	0	5	361	63248.2
2271	202109	157	1.1	8192	13.3	40.96	0	10	121	85829.1
2272	202109	159	1.1	8192	13.3	40.96	0	10	367	74530.6
2273	202109	160	1.1	8192	13.3	40.96	0	10	252	73792.9

2274	202109	161	1.1	8192	13.3	40.96	0	10	159	72684.6
2275	202109	162	2.6	16384	16	58.98	0	10	155	240355
2276	202109	163	2.3	16384	16	58.98	0	10	135	279832.3
2277	202109	166	2	16384	13.3	40.96	0	10	191	179094.1
2278	202109	167	2	16384	13.3	40.96	0	10	133	205599.9
2279	202109	168	2	16384	13.3	40.96	0	10	130	186238.4
2280	202109	213	2.6	8192	15.6	82.94	0	12	265	131665.7
2281	202109	227	2	8192	15.6	20.74	1	12	1937	133433.5
2282	202109	233	1.2	8192	15.6	20.74	1	5	290	74777.5
2283	202109	234	1	8192	15.6	20.74	1	5	214	84732.4
2284	202109	238	1.8	4096	15.6	10.49	1	9	865	65772.3
2285	202109	240	2.1	8192	14	20.74	1	9	181	95334.2
2286	202109	241	1.8	8192	15.6	20.74	1	9	351	101921.5
2287	202109	242	3.3	16384	15.6	20.74	1	9	139	143862.2
2288	202109	244	1.6	8192	15.6	20.74	1	9	487	58798.6
2289	202109	253	2.3	8192	15.6	20.74	1	9	648	87014.3
2290	202109	258	2.1	8192	13.3	20.74	1	9	131	68028.5
2291	202109	267	2.6	8192	15.6	20.74	1	9	239	73509.7
2292	202109	270	1.9	4096	15.6	10.49	1	9	330	54788.7
2293	202109	271	1.9	4096	15.6	10.49	1	9	197	56285.7
2294	202109	272	1.9	4096	15.6	10.49	1	9	151	51733.1
2295	202109	273	2.6	8192	15.6	20.74	1	9	253	112932.8
2296	202109	274	2.6	16384	15.6	20.74	1	9	217	126529.8
2297	202109	275	1.9	4096	15.6	10.49	1	9	186	64419.4
2298	202109	276	1.1	4096	11.6	10.49	0	9	695	22296.7
2299	202109	278	1.9	4096	13.3	20.74	0	9	529	51210.2
2300	202109	282	1.8	8192	13.3	40.96	0	9	180	110969.9
2301	202109	286	1.8	8192	14	20.74	1	9	160	120997.4
2302	202109	287	2.4	8192	15.6	20.74	1	9	278	99993.8
2303	202109	288	2.6	8192	17.3	20.74	1	11	677	173169.4
2304	202109	289	2.6	8192	17.3	20.74	1	11	417	162816.2
2305	202109	296	2	8192	17.3	20.74	1	11	606	131479.7
2306	202109	297	2	8192	13.3	20.74	1	11	114	140686.5
2307	202109	298	2	8192	13.3	20.74	1	11	522	142665
2308	202109	304	2.8	8192	14	20.74	1	12	115	131025.4

2309	202109	305	2.8	8192	14	20.74	1	12	1235	133806.9
2310	202109	306	2.6	8192	14	20.74	1	12	1017	99459.5
2311	202109	307	2.8	8192	13.3	20.74	1	12	268	180389.5
2312	202109	308	2.4	8192	13.3	20.74	1	12	147	165843.1
2313	202109	309	2.1	8192	12.5	20.74	1	12	139	143885.3
2314	202109	310	2.1	8192	12.5	20.74	1	12	123	142468.9
2315	202109	312	1.8	8192	12.5	20.74	1	12	187	126905.3
2316	202109	323	2.1	8192	15.6	10.49	1	8	354	95643.1
2317	202109	331	1.9	4096	15.6	20.74	1	8	171	70058.5
2318	202109	335	2.4	8192	13.3	20.74	1	8	365	156507.3
2319	202109	337	2.8	8192	15.6	20.74	1	8	177	125527.7
2320	202109	338	2.8	8192	15.6	20.74	1	8	290	127148.7
2321	202109	339	2.8	8192	15.6	20.74	1	8	802	126069.5
2322	202109	340	2.8	16384	13.3	20.74	1	8	134	191967.9
2323	202109	341	2.4	8192	13.3	20.74	1	8	224	173380
2324	202109	342	2.8	16384	15.6	20.74	1	8	106	163853.8
2325	202109	343	2.4	8192	15.6	20.74	1	8	180	150213.7
2326	202109	344	1.8	4096	13.3	20.74	1	8	103	129907.1
2327	202109	345	1.8	4096	13.3	20.74	1	8	177	113091.2
2328	202109	346	2.4	8192	15.6	20.74	1	8	161	105166.2
2329	202109	347	2.4	8192	15.6	20.74	1	8	605	109318.1
2330	202109	348	2.8	8192	16.1	20.74	1	8	287	150881.1
2331	202109	349	2.8	8192	16.1	20.74	1	8	292	144056.7
2332	202109	350	2.8	8192	15.6	20.74	1	8	1223	124375.8
2333	202109	351	2.4	8192	15.6	20.74	1	8	507	109719
2334	202110	1	1.1	4096	11.6	10.49	0	6	517	20119.1
2335	202110	2	1.1	4096	14	20.74	0	6	104	24620.9
2336	202110	10	2.3	8192	15.6	20.74	1	6	176	33763.6
2337	202110	11	2.3	8192	15.6	20.74	1	6	646	74054
2338	202110	13	1.1	4096	11.6	10.49	1	6	653	25500.6
2339	202110	16	2.5	8192	15.6	20.74	1	6	186	88844.9
2340	202110	21	2.6	8192	14	20.74	1	6	362	67536.2
2341	202110	22	2.7	8192	14	20.74	1	6	100	60043
2342	202110	25	2	16384	14	20.74	1	6	137	131606.1
2343	202110	29	1.1	4096	11.6	10.49	1	6	132	42344.4

2344	202110	31	1.1	4096	15.6	10.49	0	6	192	22514.1
2345	202110	32	2.6	4096	14	20.74	1	6	384	37967.4
2346	202110	35	1.2	8192	15.6	20.74	1	7	214	74781.6
2347	202110	37	1.1	4096	15.6	20.74	1	7	178	44525.9
2348	202110	39	1.1	4096	14	10.49	0	7	217	24983.2
2349	202110	42	1	8192	15.6	20.74	1	7	155	65393.5
2350	202110	43	1	8192	15.6	20.74	1	7	430	92582.2
2351	202110	62	2.6	16384	17.3	20.74	1	4	211	164183.4
2352	202110	65	2.5	8192	15.6	20.74	1	4	172	117841.2
2353	202110	66	2.6	16384	15.6	20.74	1	4	103	147276.4
2354	202110	67	2.4	16384	17.3	20.74	1	4	140	221005.6
2355	202110	69	2.4	16384	17.3	20.74	1	4	106	141107.6
2356	202110	72	2.5	16384	15.6	20.74	1	4	118	108685.2
2357	202110	159	1.1	8192	13.3	40.96	0	10	193	76288.2
2358	202110	160	1.1	8192	13.3	40.96	0	10	145	76106.8
2359	202110	162	2.6	16384	16	58.98	0	10	104	240368.6
2360	202110	166	2	16384	13.3	40.96	0	10	150	179846
2361	202110	167	2	16384	13.3	40.96	0	10	120	203208.4
2362	202110	168	2	16384	13.3	40.96	0	10	169	185746.1
2363	202110	169	2	16384	13.3	40.96	0	10	106	201343.5
2364	202110	174	2.3	8192	15.6	20.74	1	12	410	109790.3
2365	202110	213	2.6	8192	15.6	82.94	0	12	285	128100.8
2366	202110	214	2.3	8192	15.6	20.74	0	12	108	95800.5
2367	202110	225	2	8192	15.6	20.74	1	12	4818	123247
2368	202110	227	2	8192	15.6	20.74	1	12	1506	133238
2369	202110	228	1.8	8192	13.3	20.74	1	12	154	116540.5
2370	202110	233	1.2	8192	15.6	20.74	1	5	102	75570.1
2371	202110	238	1.8	4096	15.6	10.49	1	9	1148	65236.6
2372	202110	240	2.1	8192	14	20.74	1	9	166	95170
2373	202110	241	1.8	8192	15.6	20.74	1	9	393	100869.8
2374	202110	242	3.3	16384	15.6	20.74	1	9	136	144715.4
2375	202110	244	1.6	8192	15.6	20.74	1	9	341	60683.8
2376	202110	253	2.3	8192	15.6	20.74	1	9	456	82800.5
2377	202110	258	2.1	8192	13.3	20.74	1	9	131	65690.6
2378	202110	267	2.6	8192	15.6	20.74	1	9	207	71016.3

2379	202110	270	1.9	4096	15.6	10.49	1	9	274	53326.8
2380	202110	271	1.9	4096	15.6	10.49	1	9	162	56254.7
2381	202110	273	2.6	8192	15.6	20.74	1	9	272	102079
2382	202110	274	2.6	16384	15.6	20.74	1	9	129	125446.1
2383	202110	275	1.9	4096	15.6	10.49	1	9	102	69588.7
2384	202110	276	1.1	4096	11.6	10.49	0	9	257	25061.7
2385	202110	278	1.9	4096	13.3	20.74	0	9	235	51388.4
2386	202110	281	2.1	8192	13.3	40.96	0	9	205	79059.8
2387	202110	282	1.8	8192	13.3	40.96	0	9	232	108616.4
2388	202110	286	1.8	8192	14	20.74	1	9	140	122520.4
2389	202110	287	2.4	8192	15.6	20.74	1	9	676	97477.1
2390	202110	288	2.6	8192	17.3	20.74	1	11	540	170922
2391	202110	289	2.6	8192	17.3	20.74	1	11	406	164141.2
2392	202110	296	2	8192	17.3	20.74	1	11	253	143358
2393	202110	298	2	8192	13.3	20.74	1	11	475	140434
2394	202110	299	1.8	8192	17.3	20.74	1	11	167	171876.9
2395	202110	301	1.8	4096	15.6	10.49	1	11	115	114018.4
2396	202110	304	2.8	8192	14	20.74	1	12	106	129870.3
2397	202110	305	2.8	8192	14	20.74	1	12	971	130005.7
2398	202110	306	2.6	8192	14	20.74	1	12	949	99140.9
2399	202110	307	2.8	8192	13.3	20.74	1	12	243	178523.4
2400	202110	308	2.4	8192	13.3	20.74	1	12	151	165653.6
2401	202110	309	2.1	8192	12.5	20.74	1	12	103	147471.2
2402	202110	310	2.1	8192	12.5	20.74	1	12	108	141455.7
2403	202110	312	1.8	8192	12.5	20.74	1	12	220	123834.5
2404	202110	313	1.8	8192	15.6	20.74	1	12	215	173420.3
2405	202110	314	1.8	8192	15.6	20.74	1	12	258	189119.1
2406	202110	316	2.1	8192	15.6	10.49	1	12	850	117513.4
2407	202110	317	2.1	8192	15.6	10.49	1	12	213	118086.1
2408	202110	323	2.1	8192	15.6	10.49	1	8	390	96399.3
2409	202110	331	1.9	4096	15.6	20.74	1	8	147	67443.8
2410	202110	335	2.4	8192	13.3	20.74	1	8	307	153988.4
2411	202110	337	2.8	8192	15.6	20.74	1	8	148	125075.8
2412	202110	338	2.8	8192	15.6	20.74	1	8	283	125286.8
2413	202110	339	2.8	8192	15.6	20.74	1	8	817	123141.4

2414	202110	340	2.8	16384	13.3	20.74	1	8	105	192057.5
2415	202110	341	2.4	8192	13.3	20.74	1	8	170	169475.2
2416	202110	342	2.8	16384	15.6	20.74	1	8	150	153333.5
2417	202110	343	2.4	8192	15.6	20.74	1	8	174	138242.9
2418	202110	345	1.8	4096	13.3	20.74	1	8	122	116571.9
2419	202110	346	2.4	8192	15.6	20.74	1	8	348	101944.4
2420	202110	347	2.4	8192	15.6	20.74	1	8	471	106319.2
2421	202110	348	2.8	8192	16.1	20.74	1	8	230	147237.6
2422	202110	349	2.8	8192	16.1	20.74	1	8	301	139128.6
2423	202110	350	2.8	8192	15.6	20.74	1	8	1224	122267.4
2424	202110	351	2.4	8192	15.6	20.74	1	8	600	106296.5
2425	202111	1	1.1	4096	11.6	10.49	0	6	1245	17380.7
2426	202111	2	1.1	4096	14	20.74	0	6	104	24118.5
2427	202111	6	2.1	8192	15.6	20.74	1	6	111	69295.9
2428	202111	9	1.1	4096	15.6	10.49	1	6	158	29607.8
2429	202111	11	2.3	8192	15.6	20.74	1	6	149	79385.2
2430	202111	13	1.1	4096	11.6	10.49	1	6	527	26059.7
2431	202111	16	2.5	8192	15.6	20.74	1	6	415	85735
2432	202111	21	2.6	8192	14	20.74	1	6	804	65112.3
2433	202111	22	2.7	8192	14	20.74	1	6	149	59631.2
2434	202111	25	2	16384	14	20.74	1	6	118	133567.3
2435	202111	26	1.1	4096	11.6	10.49	0	6	194	19400.8
2436	202111	29	1.1	4096	11.6	10.49	1	6	139	40627.3
2437	202111	31	1.1	4096	15.6	10.49	0	6	146	22222.6
2438	202111	32	2.6	4096	14	20.74	1	6	332	37652
2439	202111	33	1.1	4096	11.6	10.49	0	6	299	26281.4
2440	202111	35	1.2	8192	15.6	20.74	1	7	170	71864.5
2441	202111	37	1.1	4096	15.6	20.74	1	7	122	45052.9
2442	202111	39	1.1	4096	14	10.49	0	7	470	23761.5
2443	202111	42	1	8192	15.6	20.74	1	7	133	62311.6
2444	202111	43	1	8192	15.6	20.74	1	7	386	89601
2445	202111	53	1.1	4096	14	20.74	0	7	106	35590.4
2446	202111	62	2.6	16384	17.3	20.74	1	4	136	164296.8
2447	202111	63	2.6	16384	15.6	20.74	1	4	158	117333.6
2448	202111	65	2.5	8192	15.6	20.74	1	4	111	117557

2449	202111	66	2.6	16384	15.6	20.74	1	4	388	142002.2
2450	202111	67	2.4	16384	17.3	20.74	1	4	101	219163.7
2451	202111	68	2.4	16384	15.6	20.74	1	4	110	169280.4
2452	202111	69	2.4	16384	17.3	20.74	1	4	187	140724.3
2453	202111	70	2.4	16384	17.3	20.74	1	4	115	148997.1
2454	202111	72	2.5	16384	15.6	20.74	1	4	293	106294.5
2455	202111	79	1.6	8192	14	20.74	0	5	456	68577.8
2456	202111	159	1.1	8192	13.3	40.96	0	10	161	75407.6
2457	202111	162	2.6	16384	16	58.98	0	10	114	190546
2458	202111	166	2	16384	13.3	40.96	0	10	119	163431.8
2459	202111	174	2.3	8192	15.6	20.74	1	12	248	109800
2460	202111	213	2.6	8192	15.6	82.94	0	12	259	121116.8
2461	202111	225	2	8192	15.6	20.74	1	12	4660	118980.6
2462	202111	227	2	8192	15.6	20.74	1	12	1270	130847.2
2463	202111	233	1.2	8192	15.6	20.74	1	5	184	75198.9
2464	202111	238	1.8	4096	15.6	10.49	1	9	1298	63815.1
2465	202111	240	2.1	8192	14	20.74	1	9	203	94057
2466	202111	241	1.8	8192	15.6	20.74	1	9	442	99608.8
2467	202111	242	3.3	16384	15.6	20.74	1	9	171	145253.5
2468	202111	244	1.6	8192	15.6	20.74	1	9	200	56934
2469	202111	253	2.3	8192	15.6	20.74	1	9	124	78010.8
2470	202111	258	2.1	8192	13.3	20.74	1	9	107	61155.5
2471	202111	267	2.6	8192	15.6	20.74	1	9	193	69785.8
2472	202111	270	1.9	4096	15.6	10.49	1	9	224	53038.6
2473	202111	271	1.9	4096	15.6	10.49	1	9	123	55743.6
2474	202111	273	2.6	8192	15.6	20.74	1	9	215	99870.5
2475	202111	275	1.9	4096	15.6	10.49	1	9	106	68754.5
2476	202111	276	1.1	4096	11.6	10.49	0	9	176	26443.3
2477	202111	278	1.9	4096	13.3	20.74	0	9	142	51988.8
2478	202111	281	2.1	8192	13.3	40.96	0	9	128	80923.8
2479	202111	282	1.8	8192	13.3	40.96	0	9	231	109720.8
2480	202111	286	1.8	8192	14	20.74	1	9	102	121982.6
2481	202111	287	2.4	8192	15.6	20.74	1	9	325	99299
2482	202111	288	2.6	8192	17.3	20.74	1	11	519	169773.2
2483	202111	289	2.6	8192	17.3	20.74	1	11	354	160633.4

2484	202111	296	2	8192	17.3	20.74	1	11	172	150079.5
2485	202111	298	2	8192	13.3	20.74	1	11	562	139859.4
2486	202111	299	1.8	8192	17.3	20.74	1	11	474	172649.1
2487	202111	300	1.8	8192	17.3	20.74	1	11	155	188191.3
2488	202111	301	1.8	4096	15.6	10.49	1	11	470	122204.6
2489	202111	302	1.8	4096	15.6	10.49	1	11	288	114597.5
2490	202111	305	2.8	8192	14	20.74	1	12	912	128663.6
2491	202111	306	2.6	8192	14	20.74	1	12	1255	94934
2492	202111	307	2.8	8192	13.3	20.74	1	12	261	175112.4
2493	202111	308	2.4	8192	13.3	20.74	1	12	129	158883.7
2494	202111	309	2.1	8192	12.5	20.74	1	12	139	143639.5
2495	202111	310	2.1	8192	12.5	20.74	1	12	100	143163
2496	202111	312	1.8	8192	12.5	20.74	1	12	232	120707.9
2497	202111	313	1.8	8192	15.6	20.74	1	12	1086	165631.6
2498	202111	314	1.8	8192	15.6	20.74	1	12	1247	178611.8
2499	202111	315	1.8	8192	15.6	20.74	1	12	277	170537.3
2500	202111	316	2.1	8192	15.6	10.49	1	12	2127	114363.3
2501	202111	317	2.1	8192	15.6	10.49	1	12	724	115203.2
2502	202111	318	2.8	8192	14	20.74	1	12	129	170547.5
2503	202111	320	1.1	4096	11.6	10.49	1	12	113	86368
2504	202111	323	2.1	8192	15.6	10.49	1	8	984	93554.9
2505	202111	331	1.9	4096	15.6	20.74	1	8	133	66230.1
2506	202111	335	2.4	8192	13.3	20.74	1	8	332	153533.2
2507	202111	337	2.8	8192	15.6	20.74	1	8	226	120588.5
2508	202111	338	2.8	8192	15.6	20.74	1	8	328	122404.9
2509	202111	339	2.8	8192	15.6	20.74	1	8	1014	118480.3
2510	202111	340	2.8	16384	13.3	20.74	1	8	132	190040.5
2511	202111	341	2.4	8192	13.3	20.74	1	8	172	169360.5
2512	202111	342	2.8	16384	15.6	20.74	1	8	163	150027
2513	202111	343	2.4	8192	15.6	20.74	1	8	267	129922
2514	202111	345	1.8	4096	13.3	20.74	1	8	144	112855
2515	202111	346	2.4	8192	15.6	20.74	1	8	371	96317.3
2516	202111	347	2.4	8192	15.6	20.74	1	8	222	102560.7
2517	202111	348	2.8	8192	16.1	20.74	1	8	306	145492.3
2518	202111	349	2.8	8192	16.1	20.74	1	8	438	134210.4

2519	202111	350	2.8	8192	15.6	20.74	1	8	1385	119390.1
2520	202111	351	2.4	8192	15.6	20.74	1	8	917	101396.5
2521	202112	1	1.1	4096	11.6	10.49	0	6	1568	17437.1
2522	202112	6	2.1	8192	15.6	20.74	1	6	100	68565.4
2523	202112	7	2.1	8192	15.6	20.74	1	6	102	69722.6
2524	202112	9	1.1	4096	15.6	10.49	1	6	140	31252.8
2525	202112	11	2.3	8192	15.6	20.74	1	6	158	77946.7
2526	202112	13	1.1	4096	11.6	10.49	1	6	718	28547.4
2527	202112	16	2.5	8192	15.6	20.74	1	6	352	84981.3
2528	202112	21	2.6	8192	14	20.74	1	6	1413	61972.4
2529	202112	22	2.7	8192	14	20.74	1	6	163	54231.9
2530	202112	25	2	16384	14	20.74	1	6	295	119441.7
2531	202112	26	1.1	4096	11.6	10.49	0	6	473	17681.4
2532	202112	27	3.1	16384	15.6	20.74	1	6	303	116270.1
2533	202112	28	2.2	16384	15.6	20.74	1	6	196	108471.8
2534	202112	29	1.1	4096	11.6	10.49	1	6	172	42203.2
2535	202112	30	2.4	8192	15.6	20.74	1	6	117	82254.7
2536	202112	31	1.1	4096	15.6	10.49	0	6	161	22994.2
2537	202112	32	2.6	4096	14	20.74	1	6	459	36639
2538	202112	33	1.1	4096	11.6	10.49	0	6	575	24807.3
2539	202112	35	1.2	8192	15.6	20.74	1	7	138	73025.5
2540	202112	37	1.1	4096	15.6	20.74	1	7	233	44763.6
2541	202112	39	1.1	4096	14	10.49	0	7	204	25116.5
2542	202112	40	1.1	4096	14	10.49	0	7	140	27107
2543	202112	42	1	8192	15.6	20.74	1	7	132	64992
2544	202112	43	1	8192	15.6	20.74	1	7	340	85995.8
2545	202112	62	2.6	16384	17.3	20.74	1	4	225	159259.3
2546	202112	63	2.6	16384	15.6	20.74	1	4	235	114009.3
2547	202112	64	2.6	8192	15.6	20.74	1	4	120	101914.6
2548	202112	65	2.5	8192	15.6	20.74	1	4	216	117097.8
2549	202112	66	2.6	16384	15.6	20.74	1	4	387	125023.5
2550	202112	67	2.4	16384	17.3	20.74	1	4	183	213518.3
2551	202112	68	2.4	16384	15.6	20.74	1	4	208	166907.8
2552	202112	69	2.4	16384	17.3	20.74	1	4	268	138651.6
2553	202112	70	2.4	16384	17.3	20.74	1	4	215	148443.4

2554	202112	71	2.6	16384	15.6	20.74	1	4	178	121695.2
2555	202112	72	2.5	16384	15.6	20.74	1	4	349	98362.9
2556	202112	159	1.1	8192	13.3	40.96	0	10	119	75478.6
2557	202112	160	1.1	8192	13.3	40.96	0	10	107	72432.5
2558	202112	162	2.6	16384	16	58.98	0	10	425	184304.3
2559	202112	163	2.3	16384	16	58.98	0	10	103	213041
2560	202112	166	2	16384	13.3	40.96	0	10	263	152642.9
2561	202112	168	2	16384	13.3	40.96	0	10	111	151871
2562	202112	169	2	16384	13.3	40.96	0	10	104	191678.1
2563	202112	213	2.6	8192	15.6	82.94	0	12	329	117049.3
2564	202112	225	2	8192	15.6	20.74	1	12	3552	117578.6
2565	202112	227	2	8192	15.6	20.74	1	12	802	125614.4
2566	202112	231	2.4	8192	15.6	20.74	1	9	315	101136.2
2567	202112	232	2.1	8192	15.6	20.74	1	9	390	74364
2568	202112	233	1.2	8192	15.6	20.74	1	5	148	74440.2
2569	202112	235	2.8	8192	15.6	20.74	1	9	267	107148.9
2570	202112	236	1.8	4096	15.6	10.49	1	9	243	71620.3
2571	202112	237	1.8	4096	15.6	10.49	1	9	130	38179.8
2572	202112	238	1.8	4096	15.6	10.49	1	9	2140	62416.4
2573	202112	239	2.6	8192	14	20.74	1	9	130	85792.3
2574	202112	240	2.1	8192	14	20.74	1	9	284	94482.5
2575	202112	241	1.8	8192	15.6	20.74	1	9	801	99840.8
2576	202112	242	3.3	16384	15.6	20.74	1	9	344	145021.1
2577	202112	243	2.1	8192	15.6	20.74	1	9	175	61759.2
2578	202112	258	2.1	8192	13.3	20.74	1	9	101	54127.4
2579	202112	267	2.6	8192	15.6	20.74	1	9	137	67229.5
2580	202112	270	1.9	4096	15.6	10.49	1	9	136	51366.6
2581	202112	273	2.6	8192	15.6	20.74	1	9	245	106843
2582	202112	274	2.6	16384	15.6	20.74	1	9	123	120427.9
2583	202112	276	1.1	4096	11.6	10.49	0	9	443	23977.9
2584	202112	278	1.9	4096	13.3	20.74	0	9	361	49888.8
2585	202112	281	2.1	8192	13.3	40.96	0	9	136	67219.5
2586	202112	282	1.8	8192	13.3	40.96	0	9	407	109015.1
2587	202112	286	1.8	8192	14	20.74	1	9	274	120805.3
2588	202112	287	2.4	8192	15.6	20.74	1	9	657	96579.4

2589	202112	288	2.6	8192	17.3	20.74	1	11	431	173402.5
2590	202112	289	2.6	8192	17.3	20.74	1	11	293	159783.5
2591	202112	296	2	8192	17.3	20.74	1	11	192	142506.5
2592	202112	297	2	8192	13.3	20.74	1	11	121	139387.7
2593	202112	298	2	8192	13.3	20.74	1	11	673	140061.3
2594	202112	299	1.8	8192	17.3	20.74	1	11	795	181529.4
2595	202112	300	1.8	8192	17.3	20.74	1	11	234	188354.3
2596	202112	301	1.8	4096	15.6	10.49	1	11	1677	123269.1
2597	202112	302	1.8	4096	15.6	10.49	1	11	1092	111771.4
2598	202112	304	2.8	8192	14	20.74	1	12	101	128036.6
2599	202112	305	2.8	8192	14	20.74	1	12	1081	127999.1
2600	202112	306	2.6	8192	14	20.74	1	12	1422	92529.5
2601	202112	307	2.8	8192	13.3	20.74	1	12	411	178119.9
2602	202112	308	2.4	8192	13.3	20.74	1	12	249	160668.1
2603	202112	309	2.1	8192	12.5	20.74	1	12	274	143905.3
2604	202112	310	2.1	8192	12.5	20.74	1	12	168	139821.2
2605	202112	311	1.8	8192	12.5	20.74	1	12	160	122486.5
2606	202112	312	1.8	8192	12.5	20.74	1	12	277	122579.6
2607	202112	313	1.8	8192	15.6	20.74	1	12	3969	147630.1
2608	202112	314	1.8	8192	15.6	20.74	1	12	3639	159251.1
2609	202112	315	1.8	8192	15.6	20.74	1	12	1081	150588.1
2610	202112	316	2.1	8192	15.6	10.49	1	12	3999	114038.6
2611	202112	317	2.1	8192	15.6	10.49	1	12	2258	115186.2
2612	202112	318	2.8	8192	14	20.74	1	12	357	162941
2613	202112	319	3	8192	14	20.74	1	12	128	128099
2614	202112	320	1.1	4096	11.6	10.49	1	12	188	84241.6
2615	202112	322	3	8192	14	20.74	1	8	230	100543.2
2616	202112	323	2.1	8192	15.6	10.49	1	8	1001	92687.8
2617	202112	324	2.9	8192	16.1	20.74	1	8	157	176556
2618	202112	325	2.8	16384	15.6	20.74	1	8	117	171842.7
2619	202112	326	2.9	8192	15.6	20.74	1	8	101	151500.9
2620	202112	327	2.9	8192	15.6	20.74	1	8	233	158520.9
2621	202112	328	2.5	8192	15.6	20.74	1	8	326	132680.8
2622	202112	329	2.5	8192	15.6	20.74	1	8	134	132454.9
2623	202112	330	2.9	8192	15.6	20.74	1	8	268	157826.6

2624	202112	331	1.9	4096	15.6	20.74	1	8	129	66475.2
2625	202112	335	2.4	8192	13.3	20.74	1	8	584	154784.2
2626	202112	336	2.4	8192	13.3	20.74	1	8	246	136722
2627	202112	337	2.8	8192	15.6	20.74	1	8	240	117984.5
2628	202112	338	2.8	8192	15.6	20.74	1	8	332	120833.8
2629	202112	339	2.8	8192	15.6	20.74	1	8	880	119031.5
2630	202112	340	2.8	16384	13.3	20.74	1	8	169	191061.9
2631	202112	341	2.4	8192	13.3	20.74	1	8	282	172013.1
2632	202112	342	2.8	16384	15.6	20.74	1	8	126	144425.8
2633	202112	343	2.4	8192	15.6	20.74	1	8	267	127777.1
2634	202112	345	1.8	4096	13.3	20.74	1	8	214	105011.6
2635	202112	346	2.4	8192	15.6	20.74	1	8	185	90365.3
2636	202112	348	2.8	8192	16.1	20.74	1	8	381	138727.2
2637	202112	349	2.8	8192	16.1	20.74	1	8	449	129147.8
2638	202112	350	2.8	8192	15.6	20.74	1	8	1270	116225.2
2639	202112	351	2.4	8192	15.6	20.74	1	8	751	98532.8